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Messages • Scientific Programme of APICON 2024 • Free Papers Platform Presentation • M. Vishwanathan Poster Presentation

Editor-in-Chief: Prof. Dr. Mangesh Tiwaskar

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Editor-in-Chief: **Prof. Dr. Mangesh Tiwaskar**

Contents

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Editor-in-Chief: **Prof. Dr. Mangesh H Tiwaskar**

Editorial Board (2023-2024)

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Editor-in Chief Message

Mangesh Tiwaskar
Editor-in-Chief, Journal of Association of Physicians of India, APICON 2024

Dear esteemed colleagues,

As we stand on the threshold of the much-anticipated APICON 2024 happening at the most renowned and famed Bharat Mandapam, New Delhi, a gathering that promises to be a beacon of medical knowledge and collaboration, I am honoured to extend my heartfelt appreciation to the distinguished individuals who have played pivotal roles in making this event a reality.

We all are aware that Bharat Mandapam recently hosted the G20 Summit—India's most cherished summit which stamped India's authority on the global milieu under the visionary leadership of our most revered Honorable Prime Minister—Shri Narendra Bhai Modiji. We, Team Association of Physicians of India (API), and Team APICON 2024 are eagerly waiting to welcome you all to join this scientific extravaganza of knowledge and updates in the fields of medicine.

I would like to congratulate Dr Rajesh Upadhyaya, the Organizing Secretary of APICON 2024 and his team, for their exceptional dedication and tireless efforts in ensuring the success of organizing this conference. I am sure that their commitment to excellence will set a standard that will undoubtedly contribute to the conference's impact on the medical community.

A profound acknowledgment is also owed to Professor Dr Milind Nadkar, the Scientific Chairman and President-Elect, whose visionary leadership has shaped a Scientific Program that stands as a testament to intellectual rigor and scholarly excellence. Together with Professor Dr Jyotirmoy Pal, the Dean of the Indian College of Physicians (ICP), they have created a dynamic and enriching scientific feast for all participants.

In the forthcoming February issue of Journal of the Association of Physicians of India (JAPI), dedicated to APICON 2024, we are proud to present the comprehensive Scientific Program, including Abstracts of the Free Papers and Posters. This special edition aims to capture the essence of the groundbreaking research and insights presented during the conference.

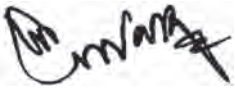
I extend my sincere commendations to Professor Dr Girish Mathur, the dynamic President of API, Professor Dr Agam Vora, our most adored Honorable General Secretary, Professor Dr Amit Saraf, bundle of energy and Treasurer of API, and Professor Dr GS Wander, visionary Director Physicians Research Foundation (PRF), for their outstanding leadership and contributions to the JAPI, APICON 2024, and API as a whole. Special recognition goes to Professor Dr Rakesh Bhadade for his exemplary work in the Scientific Committee.

Furthermore, I would like to express my heartfelt gratitude to the Advisory Board and Reviewers of JAPI, whose expertise and commitment to maintaining the highest standards of academic publishing have been invaluable. Your rigorous review process ensures the quality and integrity of the content we present to the medical community.

I extend my sincere thanks to the entire Governing Body, Faculty Council, and board members of PRF of API for their guidance and support. Dr YP Munjal, Dr BB Thakur, Dr Shashank Joshi, Dr KK Pareek and all my seniors and colleagues—your unwavering commitment has been instrumental in navigating the complexities and ensuring the smooth selling of our prestigious organization.

I will pen off now. I wish APICON 2024 a great success, and may it serve as a platform for the exchange of knowledge, collaboration, and innovation. Your collective efforts contribute significantly to the advancement of medical science and benefit humanity.

Warm regards,



Dr Mangesh Tiwaskar

Hon. Gen. Secretary's Message

Agam Vora
Hon. General Secretary

Dear esteemed colleagues and honored guests.

Get ready to immerse yourself in the refreshing downpour of knowledge at APICON 2024!

As the clouds of anticipation gather over the horizon, we invite you to join us in Delhi at Bharat Mandapam from February 22nd to 25th, 2024, for an extraordinary scientific experience. APICON 2024 promises not just a conference but a symphony of insights, collaborations, and transformative moments.

Picture this - a state-of-the-art venue, a vibrant atmosphere, and the scent of innovation in the air. This year, we're stepping into a new era of conferences with the integration of barcode technology. Bid farewell to traditional printed programs and welcome the future at your fingertips. Navigate the scientific feast seamlessly, all with the touch of your mobile device. This groundbreaking initiative, spearheaded by Dr Milind Nadkar and his dedicated team, reflects not only progress but also our commitment to sustainability.

The pages of the JAPI accompanying this event aren't just paper; they're a portal to the future. Dive into abstracts, insights, and knowledge that transcend the physical limitations of printed materials. This is your opportunity to embrace the future of conferences with convenience and efficiency.

But that's not all! Dr Jyotirmoy Pal has crafted a preconference CME adorned with multiple workshops, a treasure trove of practical insights ready to help you navigate the challenges of your day-to-day cases. The excellence of the faculties promises an enriching experience that goes beyond the ordinary.

Dr Rajesh Upadhyaya has spared no effort in selecting a conference venue that promises to leave an indelible and captivating memory on your mind.

As we dance into the rhythm of medical progress, we urge each member to embrace this technological evolution collectively. Let's make APICON 2024 an unforgettable downpour of knowledge, enhancing our experience and creating lasting memories.

Our heartfelt thanks to President Dr Girish Mathur, Dean Dr Jyotirmoy Pal, PRF Director Dr Wander, and our friends Dr Mangesh Tiwaskar, Dr Amit Saraf, Dr Rakesh Bhadade, Dr Shashank Joshi for their unwavering support.

To every member of API, your faith in us has fueled this journey, and we're excited to share this rain of knowledge with you.

May APICON 2024 exceed your expectations, becoming an indelible memory etched in the tapestry of your professional experiences.

I, along with the entire organizing and scientific committee, will be waiting eagerly to meet you.

See you in Delhi, where the rain of knowledge awaits!!

Best regards

Dr Agam Vora

President's Message

Girish Mathur

President, Association of Physicians of India, MD, FICP, FACP, FRCP, London, Glasgow, Edinburgh, FIACM, FRSSDI, Fellow Diabetes India

Dear esteemed members of the Association of Physicians of India,

As we approach the much-anticipated 79th Annual Conference of the Association of Physicians of India APICON 2024, I extend my heartfelt greetings to each member of our esteemed organization. It brings me great pleasure to share my thoughts with you through this message in the Journal of the Association of Physicians of India (JAPI).

This year's conference, slated to convene in the vibrant city of New Delhi, under the dynamic leadership of Organizing Chairman Dr YP Munjal and Organizing Secretary Dr Rajesh Upadhyay marks a significant milestone in our collective journey toward advancing medical knowledge, fostering collaboration, and embracing innovation in healthcare.

Our profession has faced unprecedented challenges in recent times, and yet, the unwavering dedication of our members has been a beacon of hope. As we gather at APICON 2024, let us reflect on our shared accomplishments, learnings, and the path forward in overcoming the evolving landscape of healthcare.

The scientific sessions curated for this conference, designed by President-Elect, Association of Physicians of India (API) and Chairman Scientific Committee Dr Milind Nadkar promise to be intellectually stimulating, covering a spectrum of topics ranging from cutting-edge research to practical clinical applications. This conference serves as a platform for us to exchange ideas, share experiences, and contribute to the collective wisdom that defines our community.

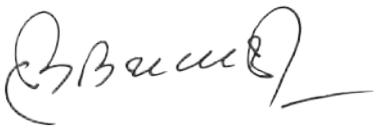
In addition to the academic aspect, I encourage each of you to actively participate in the various networking opportunities available during APICON 2024. The connections forged at this conference often transcend professional boundaries, fostering lifelong collaborations and friendships.

As president of the Association of Physicians of India, I am immensely proud of the strides we have taken together. Let us continue to uphold the values of our noble profession, champion the cause of patient care, and inspire the next generation of physicians.

I eagerly anticipate the intellectual fervor and camaraderie that will characterize APICON 2024 in New Delhi. May this conference be a testament to our shared commitment to excellence in medicine.

Wishing you all a fulfilling and enriching experience at APICON 2024!

Warm regards,



Dr Girish Mathur

President Elect Message

Milind Y Nadkar
President Elect, API and Chairman Scientific Committee, APICON 2024

Dear Colleagues and Friends,

It is my proud privilege to extend a warm welcome to all the faculties and delegates attending the Annual Conference of the Association of Physicians of India (API) (APICON 2024) to be held in New Delhi from 22nd to 25th February 2024.

It is my duty to first pay tribute to my mentor Dr Siddhrath N Shah, who has sculpted my API career to reach this peak position I enjoy today. I also thank Dr Y P Munjal for the guidance through my journey in API. I thank Dr K K Pareek also for being a guiding force from time to time and writing the Foreword for "Medicine Update 2024."

My entire team in Mumbai has been helping me to put the Scientific Program of APICON 2024 in place. It was a mammoth task to prepare a scientific program spread over 2.5 days in which I had great help from Dr Rakesh Bhadade and Dr Anupam Prakash.

The scientific committee has tried to put comprehensive, interactive, and clinical-oriented scientific sessions under the theme "Clinical to Digital." We have invited faculties from across the country who are pioneers in their fields to share their expertise and experiences. I hope all the delegates will have a fruitful interaction with this faculty and enrich their knowledge and skills. Due weightage is given to other aspects like communication skills, physicians' health, medical ethics, etc.

For Free Paper Presentation, we have received over 1,500 papers. These are mainly being presented by postgraduate students and young physicians. Dr Kaustubh Salagre has been instrumental in coordinating poster and platform presentations of free papers. I appreciate help rendered by Dr Ghanshyam Pangtay for free paper presentation.

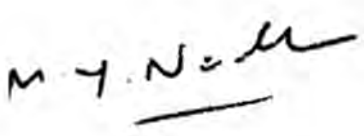
Two volumes of Medicine Update book are being published which includes articles written by the distinguished faculty based on their topic of deliberation. There are over 280 articles in the book which will serve as a reference book with updated knowledge.

Venue of the APICON 2024 conference is the state-of-art "Bharat Mandpam" which is the latest addition to the prestige of Bharat which was used for holding the G20 summit recently. Historic capital city of New Delhi gives opportunity to explore many places for the delegates.

The APICON 2024 Organizing Committee under the dynamic leadership of Dr Rajesh Upadhay is leaving no stone unturned to make the conference memorable.

Looking forward to interact with you in New Delhi.

Regards,



Dr Milind Y Nadkar

Director PRF's Message

Gurpreet S Wander

Professor of Cardiology, Dayanand Medical College & Hospital (DMCH), Ludhiana, Past President, Association of Physicians of India, Director, Physicians Research Foundation (of API) India

It is a pleasure and an honor to welcome you all for the APICON 2024 from 22nd to 25th February. We will be having a 1 hour 20 minute session on "Research Methodologies and Medical Writing" on 24th February from 10:00 to 11:20 am in Hall C. It will give the Physician Research Foundation an opportunity to share knowledge with postgraduate students and young physicians. This is a landmark step since we will be having a session by the Public Relations and Fundraising (PRF) wing of the Association of Physicians of India (API) for the first time. I must thank Dr Milind Nadkar, President-Elect and the governing body of API for this initiative. It is our effort to inculcate good and ethical research methodologies among physicians in India. We need to do clinical research and publish our findings regarding the special illnesses our patients suffer from. The PRF will also have a director's oration for the first time in this APICON at Delhi. We have collected data on patients of mucormycosis from across the country and will be publishing this retrospective work shortly. We will be keen on doing prospective registries and case series from across the country. Those of you who have any topics in mind can please share them with us so that we can deliberate upon them and then start collecting data.

Looking forward to meeting you all in Delhi.

Dr Gurpreet S Wander

Dean ICPs Message

Jyotirmoy Pal
Dean, Indian College of Physicians

It is my pleasure and honor to write this congratulatory message for the Abstract Issue of Journal of the Association of Physicians of India (JAPI) which contains the abstracts for free papers and posters presented in APICON 2024, New Delhi.

The Association of Physicians of India (API) has always endeavored to uphold and uplift medical knowledge and education and the annual conference is the perfect setting for meaningful presentation of clinical wisdom and information about latest advancements in medical science.

The free papers are also a revelation in the mindboggling variety and ingenuity of our students and medical fraternity from all over the country.

I sincerely wish the scientific program of APICON 2024 is successful in empowering the Indian physician. For decades the JAPI has been the vehicle and mouthpiece for dissemination of creative and significant knowledge that helps in updating oneself and utilizing it in daily practice for better patient care. My heartfelt good wishes and congratulations to the editorial team for their efforts in putting together this issue in such an excellent way.

Jyotirmoy Pal

Dr Jyotirmoy Pal

ANNOUNCEMENT

DR. VR JOSHI API AWARD FOR OUTSTANDING REFEREE FOR THE YEAR 2023

- **Dr. Abhay Bhave,** *Mumbai*
- **Dr. Bidita Khandelwal,** *Sikkim*
- **Dr. Nirupam Prakash,** *Lucknow*

Dean-Elect ICP's Message

Dr R K Singal
Journal of the Association of Physicians of India

Wishing a very happy and prosperous 2024 to you and all your family members

It is my proud privilege and honor to forward this abstract issue of APICON 2024 being organized at Bharat Mandapam in New Delhi from 22nd to 25th February 2024. The free papers and poster presentations really bring out the enthusiasm of our young and budding internists from all over the country about various medical issues being faced by the masses.

I am confident that delegates will be enriched from the scientific deliberations being organized by our President-Elect of the Association of Physicians of India (API) Dr Milind Nadkar and Dean of the Indian College of Physicians (ICP) Dr Jyotirmoy Pal. They have taken great pains to lay out an excellent scientific feast incorporating the latest advances in the field of internal medicine.

Looking forward to seeing you in the capital city New Delhi.

With warm regards,

Dr R K Singal

GOING GREEN

Dear Members,

JAPI plans to **Go Green**. It is the time we go environment conscious. All the members will continue to receive physical copies of your favourite journal, should you opt to receive only e-copy, please write to us on:- onlinejapi@gmail.com/mangesh.japi@gmail.com.

I, on behalf of the entire editorial team, assure that you will receive your soft copy on the 1st week of every month on your screen through the JAPI website.

Prof. Dr. Mangesh Tiwaskar
Editor-in-Chief, JAPI

Organizing Secretary Message

Rajesh Upadhyay
Organizing Secretary, APICON 2024

Dear Esteemed Colleagues,

On behalf of the organizing committee, it is my pleasure to extend a heartfelt welcome to each one of you to the 79th Annual Conference of the Physicians of India, APICON 2024 scheduled to take place at the iconic venue, Bharat Mandapam in the vibrant city of Delhi. Your presence adds immense value and we are thrilled to have you join us for this intellectual gathering.

Our team has worked diligently to ensure that every aspect of the conference enhances your experience, from the choice of venue to the selection of topics and the seamless organization of events. We are confident that you will find the conference both enlightening and enjoyable.

We have been working very closely with the Chairman Scientific, National, and the Chairman CME to curate an outstanding scientific program at APICON 2024 as we strive to foster a collaborative environment for intellectual exchange, our conference agenda is packed with engaging sessions, cutting-edge research presentations, orations, and thought-provoking discussions.

Delhi, with its rich history, cultural diversity, and modern charm, serves as the perfect backdrop for our conference. Skyscrapers, educational institutions, and technological hubs coexist harmoniously with the serene greens of parks and historical landmarks. Delhi, with its spirited spirit, encapsulates the essence of India—a harmonious blend of tradition and modernity, heritage and progress.

Let us come together to make this conference a remarkable gathering of medical minds, where knowledge blossoms, collaborations thrive and friendships endure.

Thank you for being a part of this prestigious event. I look forward to welcoming you to Delhi.

See you at APICON 2024!

Warm regards,

Dr Rajesh Upadhyay

TENTATIVE SCIENTIFIC PROGRAMME (APICON CME 2024)

Day 1: Thursday 22nd February, 2024

Time	Session
	Hall: Charak
08:30–09:30	Inauguration
09:30–10:30	**Session 1** *Chairpersons:* **B R Bansode, Pritam Gupta**
09.30–09.50	Hepatitis in the immunocompromised **Bharat Bhushan Rewari**
09:50–10:00	Microalbuminuria in CV Risk Stratification **Jayanta Panda**
10:10–10:30	Caring for the Elderly in the Intensive Care Unit **Y S N Raju**
	Session 2 *Chairpersons:* **Y P Munjal, Alka Deshpande, R K Singhal**
10:30–11:10	Dean's Oration **Jyotirmoy Pal**
	Session 3 *Chairpersons:* **A Muruganathan, D P Singh, P C Manoria**
11:10–11:30	Medicine Past, Present n Future **Alaka Deshpande**
11:30–11:50	Improving Communication Skills in the Practice in Medicine **R K Singal**
11:50–12:10	Trigeminal Autonomic Cephalgias **Amit Saraf**
12:10–01:30	**Session 4: Rabindranath Tagore Oration** *Chairpersons:* **Girish Mathur, Manotosh Panja**
12:10–12:30	Key Note Address—GINA Guidelines—Whats New? **Paul Bryne**
12:30–01:00	Critical Care Nutrition—How Nutrition Practices Changed over The Decade **Subhal Dixit**
	Session 5 *Chairpersons:* **G S Wander, Ashok Mukherjee**
01:00–01:20	Honor Lecture **YP Mujal**
01:20–01:40	Approach to Resistant Hypertension **B B Thakur**
01:40–02:00	Heart failure with Preserved Ejection Fraction (HFPEF)—What is new? **Amal Kumar Banerjee**
02:00–03:00	**Session 6** *Chairpersons:* **Sashank Joshi, Mangesh Tiwaskar, Giridhari Kar**
02:00–02:20	Hypoglycemia and Cardiovascular Disease—Current Understanding **Apurba Kr Mukherjee**
02:20–02:40	Hepatic Steatosis and Obesity—An Approach from Internal Medicine **Ricardo Gomez Huelgas**
02:40–03:00	Very Late complications of Cardiac Intervention **Manotosh Panja**
03:00–04:00	**Session 7** *Chairpersons:* **M K Roy, R R Chowdhury, G Narasimulu**
03:00–03:20	Medical Reconciliation **Arunima Goswami**
03:20–03:40	Prescribing Cascade **Nandini Chatterjee**
03:40–04:00	Laboratory Investigations in Rheumatology—Challenges in Interpretation **Alokendu Ghosh**
04:00–05:00	**Session 8** *Chairpersons:* **V Palaniappan, Ananda Bagchi**
04:00–04:20	Artificial Intelligence and ECG **S B Gupta**
04:20–04:40	Epilepsy Syndromes **Gagandeep Singh**
04:40–05:00	Unravelling the Mind-Epilepsy Connection: Psychiatric Disorders in Epileptic Patients **P K Maheswari**

Time	Session
	Hall: Jeevak
09:00–10:00	**Session 1** *Chairpersons:* **Namitha Narayanan, S B Ganguly, S Chakraborty**
09:00–09:20	How Benign is Benign Tertian Malaria? **Swaroop Kumar Baruah**
09:20–09:40	Approach to Transient Unconsciousness .5 **MPS Chawla**
09:40–10:00	Hypertensive Emergency **Kamlesh Tiwary**
10:00–11:00	**Session 2: Global Summit 1** *Chairpersons:* **Shyam Sundar, Anil Virmani, Sanjay Tandon, Ganaka Senaratne**
10-10-20	Very Late Complication of Cardiac Intervention **Manatosh Panja**
10:00–10:20	Hypertension Mediated Organ Damage **Kumudini Jaysinghe**
10:20–10:40	RTA—When to suspect? **Surajit Tarafdar**
10:40–11:00	Approach to a Case of Unknown Poisoning **Madhuwanthi Hettiarachchi**
11:00–11:30	Panel Discussion (Case-based) *Chairpersons:* **Surjit Tarafdar, Anna Duke, Balaji Kalaband, Rajini Lal**
11:30–12:30	High Bleeding Risk Management (Panel Discussion) *Chairpersons:* **J S Hiremath, Manish Bhatnagar, Ramesh Patankar, Raj Mandot**
12:30–01:30	**Session: Global Summit 2** *Chairpersons:* **Mehruba Alam Ananna, Divya Saxena, Arun Kedia, Datuk Seri, Paras Doshi**
12:30–12:50	Discordant Thyroid Functions **Suranga Manilgama**
12:50–01:10	Dyslipidemia: Current Approach and Future Directions **S M Arafat**
01:10–01:30	Contrast-induced Nephropathy **M P Kafle**
01:30–02:00	Inauguration of Global Summit
01:30–02:00	**Session** *Chairpersons:* **Swati Srivastaba, Anuj Maheswari, Tanu Raj Sirohi**
01:30–02:00	Sudden Cardiac Arrest: Perspective in Mid-21st Century **Ashis Thakur**

01:30–02:00	ABG ANALYSIS - Rational Approach **SV Ramanamurty**
01:30–02:00	Point of Care—Ultra Sonography in Rheumatology **Bhaskar Dasgupta**
01:30–02:00	**Session: RCP Glasgow** *Chairperson:* **Nandu Silwal Poudyal**
01:30–02:00	Obstructive Sleep Apnoea and Cardiovascular Risk **Eric Livingston**
01:30–02:00	Holistic Approach to Ischaemic Heart Disease **Hany Eteib**
01:30–02:00	Panel Discussion **E Livingstone and Hany Eteiba**
01:30–02:00	*Chairpersons:* **Debasis Bhattacharya, Pradip Kumar Maitra, Uttam Biswas**
	Lupus and Infection Difficult to Deal with **Quazi Tarikul Islam**
	Care of CKD in an Antenatal Women **Manisha Sahay**
	Sleep Circadian Rhthyms and Diabetes **Rakesh Sahay**
05:00–06:00	*Chairpersons:* **Bapilal Bala, Atanu Chandra, Sahadev H K, V B Jindal**
	Care Giver Communication/Counselling in Dying Patients **Krishna Prashanti**
	Principles of Geriatric Prescribing **Parvati Nandi**
	Mitochondria as a New Target for Managing Diabetic Complications **Vitull K Gupta**
	Auto-immune Encephalitis—An Update **K K Sawalani**

Time	Session
	Hall: Vagbhatt
09:00–10:00	**Session 1** *Chairpersons:* **Sanjay Bandyopadhyay, Pijush Kanti Mandal, P M Vinaya Swami**
09:00–09:20	A 50 yrs Male with Diabetes Admitted with Abdominal Pain and Bleeding Per Rectum **Ashish Kumar Saha**
09:20–09:40	Antiplatelets in High Bleeding Risk Patients **D P Chakraborty**
09:40–10:00	Vacuolar Myolopathy in HIV **Dipanjan Bandyopadhyay**
10:10–11:00	**Session 2** *Chairpersons:* **Sharad Kumar Parashar, Niladri Sarkar, S Chandrasekar**
10:10–10:20	Neuroimaging in Acute Stroke **K Mugundhan**
10:20–10:40	Obesity in Elderly **Soumitra Ghosh**
10:40–11:00	Out of Hospital Cardiac Arrest **Chandrasekhar Valupadasu**
11:00–11:30	**Panel Discussion** Chairperson: **Nandini Chatterjee**
	Influenza-like Illness—Clinical Decision Making and Prevention **Anand Krishnan, Monish Soneja, Bibhuti Saha**
11:30–12:00	
12:00–01:00	**Session 3** *Chairpersons:* **Tapas Bandyopadhyay, Jotideb Mukhopadhyay, Jayanta Chakrabortuy**
12:00–12:20	Deflazacort in Clinical Practice **Dr Sujoy Ghosh**
12:20–12:40	Diabetes and Sarcopenia **N K Soni**
12:40–01:00	MAFLD—Old Wine in New Bottle? **Mamun-Al-Mehtab**
01:00–02:00	**Session 4** *Chairpersons:* **Pardip Bhowmik, Ashish Kr Basu, Mallik Arjun H**
01:00–01:20	Guideline-directed Medical Therapy for Heart Failure: How Far are We Serious About It? **Mrinal Kanti Das**
01:20–01:40	Filariasis Update 2024 **Santosh Kumar Swain**
01:40–02:00	Why We Fail in Managing Hypertension? **Hem Shanker Sharma**
02:00–03:00	**Session 5** *Chairpersons:* **Udas Ch Ghosh, R N Sarkar, R K Dalai**
02:00–02:20	Biomarkers in Rheumatology **Arup Kundu**
02:20–02:40	Environmental Influences on Rheumatology **Partha Sarkar**
02:40–03:00	Sepsis Mimics **A M Bhagwati**
03:00–04:00	**Session 6** *Chairpersons:* **H S Pathak, Manojit Mookherjee, Prasanna K Das**
03:00–03:20	Hypertension in Elderly **B R Bansode**
03:20–03:40	Pregnancy and Autoimmune Rheumatic Disease **Ghanshyam Pangtey**
03:40–04:00	Casts in Urine Analysis **Sanjeev Maheshwari**
04:00–05:00	**Session 7** *Chairpersons:* **Avijit bhattacharya, Sudarshan Chakraborty, Kartik Ch Rout**
04:00–04:20	Surgical Option of Rheumatic Valvular Heart Disease **Shilpa Basu Roy**
04:20–04:40	Sick Euthyroid Syndrome—How to Deal with It? **A K Gupta**
04:40–05:00	Endocrine Hypertention—Causes and Management **Jayshree Swain**
05:00–05:40	**Session 8** *Chairpersons:* **Subir Banerjee, Dipankar Sarkar**
05:00–05:20	Glycemic Control in Diabetic Kidney Disease **Robin Maskey**
05:20–05:40	B12 Deficiency in India **P K Sasidharan**
05:40–06:00	SGLT2 Inhibitors beyond Glycemia **Amit Varma**

Time	Session
	Hall: Atreya
09:00–10:00	**Session 1** *Chairpersons:* **Pradip Kr Mitra, Uttam Paul, Sradhananda Mohapatra, Sunil Bansal**
09:00–09:15	Reactive Arthritis—An Overview **Pradip Sharma**
09:15–09:30	Diabesity **Rajeev Awasthi**
09:30–09:45	Psychological Needs when Diagnosed with Diabetes **K P Chandra**

09:45–10:00	Post Viral MAS **Dhruba Choudhury**
10:00–11:00	**Session 2** *Chairpersons:* **Arnab Bhattacharya, Ashok Ku: Singh, J M Bhatnagar, A K Anuragi**
10:00–10:15	Digital Medical Technology: Pros & Cons **S V Kulkarni**
10:15–10:30	Sjogrens Syndrome—A Grossly Missed Diagnosis **Debashish Danda**
10:30–10:45	Approach to Bladder Dysfunction **M Satishkumar**
10:45–11:00	Organs-on-Chips: Past, Current, and Future **Alladi Mohan**
11:00–12:00	Hypertension **Sekhar Chakraborty**
12:00–01:00	**Session 3** *Chairpersons:* **Mary D Cruz, P S Karmakar, Bijay Ku Behera, Prahlad Chawla**
12:00–12:15	Newer Therapies in Obesity **Smita Thakur**
12:15–12:30	LETM Differential Diagnosis **Kameswar Prasad**
12:30–12:45	Paraneoplastic Arthropathy **Sarbani Sengupta**
12:45–01:00	Newer Insights into Vascular Dementia **Bhaskar Ghosh**
01:00–02:00	**Session 4** *Chairpersons:* **Kripasindhu Gantait, Debasish Chakraborty, M K Chottray, Ashwani Khanna**
01:00–01:15	MOG Antibody-associated Diseases **P R Sowmini**
01:15–01:30	Approach to a Case of Resistant Ascites **Meenakshi Bhattacharya**
01:30–01:45	Should First Single Seizure be Treated? **Manjari Tripathi**
01:45–02:00	Dyspepsia in Diabetes Mellitus **Agnibha Maity**
02:00–03:00	**Session 5** *Chairpersons:* **Smarajit Banik, Saikat Datta, Bijay K Mishra, Supriya Sarkar**
02:00–02:15	Diabetic Nephropathy—An Update **R Rajasekar**
02:15–02:30	Cavitary Lesions of Lung **Surya Kant**
02:30–02:45	Reversal of Lifestyle Disorders like HTN, Diabetes and NASH **Sanjib Sharma**
02:45–03:00	A Step towards Cure of Diabetes Mellitus : Beta Cells Nanocapsules **Ravi Kant**
03:00–04:00	**Session 6** *Chairpersons:* **Saumik Datta, Apu Adhikari, Surendra N Swain, Brij Mohan**
03:00–03:15	Unusual Presentation of Hypothyroidism **Prakash Keswani**
03:15–03:30	Drug-induced Renal Injury—New Insights and Clinical Implications **Virendra Verma**
03:30–03:45	March of Medicine: The Past Hundred Years (1923–2022) **Santanu Tripathi**
03:45–04:00	Anemia in the Elderly: New Therapeutic Concepts **Shyam Chowdhary**
04:00	G B Meeting

Time	Session
	Hall: Dr Jivraj Mehta
09:00–10:00	**Session 1** *Chairpersons:* **Nani Gopal Singha, Ayandyuti Bora, A K Das, Aruna Das**
09:00–09:15	Submassive Pulmonary Embolism Hyperreactive Splenomegaly Syndrome **Gandharva Ray Cuttack**
09:15–09:30	Cardiomyopathy in Women **Soma Saha**
09:30–09:45	Changing Clinical Profile of Tropical Infections **Pijush Kanti Mandal**
09:45–10:00	Novel Therapy for Resistant Hypertension **Jayanta Dutta**
10:00–11:00	**Session 2** *Chairpersons:* **Pasang Sherpa, Basab Bijay Sarkar, Sampat Jain, Gautam Ahluwalia**
10:00–10:15	Transporter-mediated Drug–Drug Interactions **Shambo S Samajder**
10:15–10:30	Thyroid Replacement in Patients with Comorbidities **Semanti Chakraborty**
10:30–10:45	When to Treat Subclinical Hypothyroidism **Pradip Kumar Chowdhury**
10:45–11:00	Approach to Obstructive Jaundice in 2023 **Gaurav Chawla**
11:00–12:00	**Session 3** *Chairpersons:* **Debmalya Sanyal, Amit Kalwar, Rajib Kumar Baruah, Kapil Gupta**
11:00–11:15	Hyperprolactinaemia: Approach **Shriram Mahadevan**
11:15–11:30	Adrenal Crisis in Infection **Suresh Damotharan**
11:30–11:45	Rituximab in Neurological Disorders **V Arulselvan**
11:45–12:00	Monogenic Diabetes Mellitus **Srinath KM**
12:00–01:00	**Session 4** *Chairpersons:* **Santa Subhra Chatterjee, Kaushik Saha, Sanjeev Mittal, Praveen Kumar Yadav**
12:00–12:15	The Pros and Cons of ABPM **Anuradha Deuri**
12:15–12:30	Peripheral Vascular Disease—A Surrogate of CVD Risk **B C Kalita**
12:30–12:45	Memory Assessment and Detection of Early Dementia **Tribeni Sharma**
12:45–01:00	Fever with AKI **Chiranjita Phukan**
01:00–02:00	**Session 5** *Chairpersons:* **S L Das, Pranjal Dutta, Anupam Dutta, H K Rajashekar**
01:00–01:15	Combination Therapy in Hypertension—the Dos and Don'ts **Prabhat Pandey**
01:15–01:30	Spectrum of Plasma Cell Dyscrasias **S Usha**
01:30–01:45	Interstitial Lung Disease in Rheumatic Diseases: Bird's Eye View **Mohit Goyal**
01:45–02:00	Caregiver Burnout in Clinical Practice **Surendra Daga**
02:00–03:00	**Session 6** *Chairpersons:* **Nitya Gogoi, Ripun Borpuzari, Uttam Nath, Jyoti Prakash**

02:00–02:15	AF in Elderly **Srikanth N Hegde**
02:15–02:30	A Practical Approach to Acute Vestibular Syndrome **G Balaji**
02:30–02:45	Roe of Anticoagulant in Clinical Medicine **Bapilal Bala**
02:45–03:00	Cardiac Imaging for Physicians **Mainak Mukhopadhyay**
03:00–04:00	**Session 7** *Chairpersons:* **Usha Ram Pegu, Bhabani Bhuyan, Atul Saikia, Devesh Singh**
03:00–03:15	Time in Range **Hamid Ali**
03:15–03:30	Bone Metabolism in Chronic Liver Disease **Bhabani Chakraborty**
03:30–03:45	Happy Heart Syndrome **Rajesh Kumar Jha**
03:45–04:00	Awareness of Tribal Population about Malaria **Uttam Kumar Paul**
04:00–05:00	**Session 8** *Chairpersons:* **N N Deka, Sarat Keot, Pritam K Borthakur, Manoj Rawat**
04:00–04:15	Pitfalls in Interpretation of Thyroid Function Tests **Manas Pratim Baruah**
04:15–04:30	TB-associated HIV: Where are We? **Upasna Agarwal**
04:30–04:45	Combination Therapy in Lipid Management **Deepak Gupta**
04:45–05:00	Post-COVID Pulmonary Sequelae **Pardeep Agarwal**
05:00–05:15	Alcoholic Hepatitis—What a Physician Should Know **Amritangshu Borkakoty**
05:15–05:30	Gut Micribiome and Diabetes **Pijush Agarwala**

Time	Session
	Hall: Dr Hari Vaishnav
09:00–10:00	**Session 1** *Chairpersons:* **Amal dev Goswami, Suranjit Barua, Mitali Baruah, Shobhit Shakya**
09:00–09:15	Drug-induced Hepatitis **Shivashankar**
09:15–09:30	Prosthetic Valve Thrombosis **Suresh V Sagarad**
09:30–09:45	Alkaptonuria—A Case-based Discussion **SS Lakshmanan**
09:45–10:00	Red Flag Sign in Headache **Tamil Pavai**
10:00–11:00	**Session 2** *Chairpersons:* **Shankha S Sen, Parresh K Sarma, Gopal Chandra Nath, Vivek Kumar**
10:00–10:15	Respiratory Symptom in GERD **Varun Dhanapal**
10:15–10:30	Hydroxyurea Still Gold Standard Treatment Option for Sickle Cell Disease **Lakhan Singh**
10:30–10:45	Macrophage Activation Syndrome Sachin C:Hosakatti Hubballi
10:45–11:00	Living with Congenital Heart Disease: Beyond Second Decade **Manisha Chakraborty**
11:00–12:00	**Session 3** *Chairpersons:* **Bhupen Barman, Tarun Roy Choudhuri, Bhaskar k Nath, Ambuj Yadav**
11:00–11:15	Prosthetic Valve Thrombosis **Harbir Kaur Rao**
11:15–11:30	Vitamin D Deficiency and Ishemic Heart Disease **Niraj Lodha**
11:30–11:45	Expanded Dengue Syndrome—The Spectrum **Rantu Barman**
11:45–12:00	Chemoprophylaxis for Malaria **Parinita Ranjit**
12:00–01:30	**Session 4** *Chairpersons:* **Abhijit Chatterjee, Tanushree Deb Gupta, Bhaskar Debnath, Deepak Bhagchandani**
12:00–12:15	Management of Alcoholic Hepatitis—Recent Updates **Amritanshu Borkakati**
12:15–12:30	Lung in Rheumatology **B V Muralimohan**
12:30–12:45	Crystal Arthritis—Recent Advances **B S Nagaraj**
12:45–01:00	Recent Advancements in Management of Obesity—Pharmacotherapy **R P Ram**
	Session 5 *Chairpersons:* **Kiran Soni, G P Rai, O P Rai, Jitendra Kumar**
01:00–01:15	Common Mistakes in Insulin Therapy **Nirmalya Roy**
01:15–01:30	Dyslipidemia and HbA1C Corelation in Diabetic Patients **Gopal Ch Nath**
01:30–01:45	Alcoholic Hepatitis: What's Latest? **Gautam Bhandari**
01:45–02:00	Dual Antiplatelet in CAD **Ankan Pathak**
02:00–03:00	**Session 6** *Chairpersons:* **Bablu Banik, Bhabotosh Roy, Prithiwiraj Bhattacharjee, Rajeev Verma**
02:00–02:15	Thrombocytopenia in Elderly **Sunita Agarwal**
02:15–02:30	Vaccination during Travel to Tropical Countries **Sourabh Kole**
02:30–02:45	Adenovirus: An Overview **Abhra Banerjee**
02:45–03:00	SGLTi and GTI—How to Tackle in Clinical Practice **N K Singh**
03:00–04:00	**Session 7** *Chairpersons:* **Ahmed Abbas, E A Galib Sodial, Zothantlunga, Nikhil Gupta**
03:00–03:15	Chronic Diarrhea **S C Joshi**
03:15–03:30	Feature of Medical Education in India **Ravikumar**
03:30–03:45	Healthy Ageing—Our Mantra in This Decade **B N Mohanta**
03:45–04:00	ARDS Ventilation **Bharat Jagiasi**
04:00–05:15	**Session 8** *Chairpersons:* **Dilip Kr Baruah, Omiyo Kr Borgohain, Tongkeswar Deori, Mahak Lamba**
04:00–04:15	Inhalation Therapy in the Elderly—Choosing the Ideal Device **Anita Nambier**
04:15–04:30	Management of Empyema **Sarvinder Singh**
04:30–04:45	Risk Factor Evaluation for CKD **Mritunjay kumar Singh**

04:45–05:00	Hypertension in Young Adults **Abhishek Kumar**
05:00–05:15	Metabolic Complications of ART **Naveen Kishoria**

Time	Session
	Hall: Dr K L Wig
09:00–10:00	**Session 1** *Chairpersons:* **Prafulla Kr Nath, Kartik Kr Baruah, Uttam Kr Nath, Anupam Malik**
09:00–09:15	Prevention of Complications of Diabetes Mellitus **Anil Chaturvedi**
09:15–09:30	Cardiac Pacemaker Follow Up & Troubleshooting **Bijay Narayan Jha**
09:30–9:45	Rheumatoid Arthritis in Pregnancy **Sreemanta Madhab Baruah**
09:45–10:00	MAS the Great Masquerade **Rakhi Sanyal**
10:00–11:00	**Session 2** *Chairpersons:* **Panchanan Khaklari, Nirmalendu Bhagabati, Ramananda Pathak, Abhishek Singh**
10:00–10:15	ECG-based Interesting Case Presentation **A N Rai**
10:15–10:30	Substance Abuse among Medical Professionals **Sudha Vidyasagar**
10:30–10:45	Stress Incontinence in Elderly Women **Prabha Adhikari**
10:45–11:00	Rheumatological Manifestations of HIV AIDS **Gautam Dhar Chaudhury**
11:00–12:00	**Session 3** *Chairpersons:* **Tarun Roy Choudhury, Gautam Medhi, Bhabesh Ch Das, Ajay Kumar Verma**
11:00–11:15	Health Hazards of Tobacco Consumption **Venkatesh Desai**
11:15–11:30	Current Scenario of End of Life Care in India **Sudha Sarna**
11:30–11:45	Health Problems of Health Workers—A Concern **Brig Ambika Mohanty**
11:45–12:00	Premature CAD **Asif Hasan**
12:00–01:00	**Session 4** *Chairpersons:* **Bhabatosh Roy, Gyanendra H Singh, Y C Porwal, Gopal Batni**
12:00–12:15	Metabolic Complications in PLHIV **Kaushik Ghosh**
12:15–12:30	Drug-induced Cholestasis **Manuj Kumar Sarkar**
12:30–12:45	Hydroxyurea Still Gold Standard Treatment Option for Sickle Cell Disease **Lakhan Singh**
12:45–01:00	Malaria—Updates Based on New Guidelines **Soumendranath Haldar**
01:00–02:00	**Session 5** *Chairpersons:* **Rojith Balakrishnan, Vishwanath Nowbade, H K Rajashekar, Rajesh Shrivastav**
01:00–01:15	A Note of Paraquat Poisoning **Nihar Ranjan Sahoo**
01:15–01:30	Osteoporosis—Causes and Management **Bhagyashree Panda**
01:30–01:45	Intrahepatic Cholestasis **Archith Boloor**
01:45–02:00	Kyasanur Forest Disease **Nitin Gupta**
02:00–03:00	**Session 6** *Chairpersons:* **Harpreet Singh, Anil Kumar S, Krishna Hari, Promise Jain**
02:00–02:15	Antidiabetic Agents in Renal Dysfunction **Sandeep Arora**
02:15–02:30	Gestational Diabetes—An Update **Vinay Meena**
02:30–02:45	Renovascular Hypertension **Bharat Panigrahy**
02:45–03:00	Acute Decompensated Heart Failure—An Update **Divendu Bhushan**
03:00–04:00	**Session 7** *Chairpersons:* **Jimmy Sareriya, Akash Kumar Singh, Elizabeth Jacob, Rajnish Joshi**
03:00–03:15	Hypertension in Young **Bharat Agarwal**
03:15–03:30	DMARDS in Pregnancy and Lactation **H Basavanagowdappa**
03:30–03:45	Role of Vesoconstrictors in Cirrhosis **Gaurav Pandey**
03:45–04:00	Recent Advances in IBD **Dawesh Prakash Yadav**
04:00–05:00	**Session 8** *Chairpersons:* **Shashank Paswala, Parag Rana, Balakrishnan Valliyot, V Atam**
04:00–04:15	Hyperreactive Splenomegaly Syndrome **K R Raveendra**
04:15–04:30	Sudden Cardiac Death in the Young **Iranna Hirapur**
04:30–04:45	Endocrine Complications after Snake Bite **Sadanand Naik**
04:45–05:00	Acute febrile Illness—An Update **Rajesh Honnutagi**
05:00–05:15	Endoscopic Treatment of Nonvariesial Bleed **P K Shetty**

Time	Session
	Hall: Dr S Padmavati
09:00–10:00	**Session 1** *Chairpersons:* **Kiran Shah, G R Subbu, Vineet Agarwal, K K Gupta**
09:00–09:15	ECG and Echocardiogram Correlation for Physicians **Santanu Bhakta**
09:15–09:30	Infections Causing Nephrotic Syndrome **Krishnendu Roy**
09:30–09:45	Metabolic Complications in Autoimmune Diseases **Rajdip Sen**
09:45–10:00	Thyroid Storm—Overview **Sanjoy Saran**
10:00–11:00	**Session 2** *Chairpersons:* **Manoj Mehta, Richa Giri, M P Rawal, Amit Kumar**
10:00–10:15	Hypoglycemia without Diabetes **Polok Das**
10:15–10:30	Neurological Involvement in Long COVID Syndrome **Malati Murmu**
10:30–10:45	Reemerging Zoon osis—A Challenge to Medical Fraternity **Krishna Sen**
10:45–11:00	An Approach to Galactorrhoea **Kshetrimayum Birendra Singh**

11:00–12:00	**Session 3** *Chairpersons:* **Nilesh R Patel, Kunal Sahai, Gaurav Singh, Harish Gupta**
11:00–11:15	Nonpharmacological Therapy in COPD **Viswesvaran Balasubramanian**
11:15–11:30	Nutrition in Chronic Liver Disease **Rishabh Gupta**
11:30–11:45	Update on Scrub Typhus **Kaushik Kumar Das**
11:45–12:00	Epidemiology of AES in India **R K Shahi**
12:00–01:00	**Session 4** *Chairpersons:* **Sunil Mathew, MK Madnani, Vineet Agarwal, Vijay Kumar Chaudhary**
12:00–12:15	Tumor Markers in Clinical Practice **Govindababu**
12:15–12:30	CAD: Genetics vs Lifestyle, What Wins? **Sameer Dani**
12:30–12:45	Sleep Medicine: Insights into Its Scope **Vikas Mittal**
12:45–01:00	Patient with Cramp in Leg while Walking **Arkadip Choudhury**
01:00–01:30	**Session 5** *Chairpersons:* **Manoj Kumar Mathur, Rajesh Kumar, Tridip Kumar Das, Deependra Rai**
01:00–01:15	Obstructive Sleep Apnoea **Suresh Kushwaha**
01:15–01:30	Rheumatology—Leprosy Interface **Tapas Kumar**
01:30–01:45	Fungal Endocarditis—An Update **Varun Kumar**
01:45–02:00	Art of Clinical Medicine **K N Padhiary**
02:00–03:00	**Session 6** *Chairpersons:* **Satish Kumar, Parveen Bhardwaj, Rakesh Aran, Bhabatosh Roy**
02:00–02:15	A 74yrs Old Diabetes, HTN Male Presence with Dizziness **Boudhayan Dasmunshi**
02:15–02:30	Magnesium Homeostasis—An Oft Forgotten Issue **Indranil Sinha Roy**
02:30–02:45	Approach to a Case of Refractory Seizures **Uma Sinha Roy**
02:45–03:00	Oncological Emergencies **Hemant Malhotra**
03:00–04:00	**Session 7** *Chairpersons:* **Taruni Ngangbam, Tanu Arora, Manoj Jain, Ganaka Senaratne**
03:00–03:15	Autoimmune Epilepsies—Clinical Spectrum and Management **Arun Kumar Agrawal**
03:15–03:30	Anemia in Chronic kidney Disease—Newer Insights **Saif Quaiser**
03:30–03:45	Oral Peptide in Management of T2DM—New Paradigm **Jibesh Sarkar**
03:45–04:00	Delayed Puberty—A Clinical Approach **Prem Prakash Patidar**
04:00–05:00	**Session 8: Session of Critical Care** *Chairpersons:* **Soumaditya Banerjee, Devi Ram, M C Baby, Vishwanath Nowbade**
04:00–04:15	Initial Management of Sepsis and Septic Shock **Sheila Mayatra**
04:15–04:30	Noninvasive Respiratory Support in AHRF
04:30–04:45	Recent Guidelines on Management of ARDS—What has Changed
04:45–05:00	Airway Management in Critically Ill
05:00–05:15	Role of Autophagy in Health and Disease **P Gandiah**

Time	Session
	Hall: New Hall
09:00–11:00	**Quiz**
11:00–12:00	**Session 1** Antibiotic resistance in H.pylori: A probable public health problem with grave consequences **Kunal Das** Challenges in nutritional assessment in Chronic Liver Diseases **Ms Charu Dua** Highlights of ESH 2023 new guidelines **S K Goyal**
12:00–01:00	**Session 2** AI application in Cardiac and Coronary Imaging: The Future? **Vinod Sharma** CAD in Women - How it is different? **Sunil Sathe** Home blood pressure monitoring..what is new? **Pankaj Nand Chaudhary**
01:00–02:00	**Session 3** Tuberculosis & Diabetes **Bhavesh Patel** Challenges in the diagnosis and management of Heart Disease in Women **Akash singh**

Time	Session
	Hall A: WORKSHOP
A1—10:00–11:00	Intra-articular Injection Workshop *Resource Person:* **Anupam Prakash, Sameer Gulati, Ghan Shyam Pangtey, Princi Jain**
A2—11:00–1:00	POCUS for Physicians Basics of Ultrasound Machine and Principles **N P Singh** POCUS Lung and Volume Assessment **Vineet Behera** Basics of Echocardiography **R Ananthakrishnan** POCUS Kidneys and Abdomen **Dinesh Khullar** POCUS Central Veins **Garima Aggarwal**
A3—02:00–03:00	Symposium on Nontuberculous Mycobacteria **Alladi Mohan, S K Sharma, and YSN Raju**
A4—03:00–05:00	Inhalational Devices **Agam C Vora**

Time	Session
	Hall B
B1—09:00–11:00	Neuroimaging in Clinical Practice **Aminur Rahman**
B2—11:00–01:00	OSCE Workshop **Jalil Chaudhury**

B3—01:30–04:00	Practical Approaches and Management of Electrolyte Disorders **Sanjoy Pandya**
B4—04:00–05:00	Central Venous Canulation—A Simulation-based Learning Exercise **Ritez Kumar, Anshuman Srivastava (Anupam Prakash)**

Time	Session
	Hall C
C1—09:00–10:00	Making Head and Tail of EMG and NCV—A Physician's Perspective **Akhil Panda, Abha Sharma (Anupam Prakash)**
C2—10:00–12:00	Falls in Elderly **Surekha V, Lenny Vasanthan T, Earnest Rajapandian, Teresa Gnanakumari**
C3—12:00–01:00	Toxicology and Envenomation **Divendu Bhushan and Nidhi Kaeley**
C4—02:00–04:00	Symposium on Valvular Heart Diseases **Ruchit Shah** Competency-based Medical Education **Niket Verma Bhatinda, Shivraj Meena**

Time	Session
	Hall D
D1—09:00–11:00	Obesity **Soumitra Ghosh**
D2—11:00–01:00	Benign Haematology **R K Jena**
D3—02:00–04:00	Clinical Pharmacological Reconciliation—Review and Feedback (CPRRF) **Shambo S Samajdar + 2**

The SCIENTIFIC PROGRAMME of APICON 2024 [23rd to 25th February 2024] will be uploaded on website by 1st February 2024.

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Members are requested to update their address, mobile numbers and email ID.

All are requested to send the above details to the Hon. General Secretary of API for postage of JAPI, API communications by email to **api.hdo@gmail.com.**

Dr. Agam C Vora
Hon. General Secretary

Abstracts: Free Papers - Platform Presentation (APICON-2024)

Cardiology

Beyond the Norm: Unveiling a Rare Cause of Heart Failure in the Presence of Normal Left Ventricular Function

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Introduction: Left-sided valvular lesions presenting acutely can cause sudden onset heart failure similar to patients with reduced left ventricular compliance. Acute aortic regurgitation (AR) is one of the notorious causes of acute left ventricular failure. In patients with acute severe AR, the left ventricle cannot dilate to maintain stroke volume and left ventricular diastolic pressure rises rapidly resulting in severe dyspnea and hypotension due to reduced stroke volume and raised left atrial pressure. Diagnosing acute AR and establishing its etiology is difficult in acute settings. One of the causes of acute AR is aortic dissection and its retrograde progression will be fulminant if untreated.

Care report: A 46-year-old hypertensive male presented with New York Heart Association (NYHA) class IV breathlessness and atypical chest pain for 1 day. His electrocardiogram (ECG) shows sinus tachycardia with no ST-T changes and transthoracic echocardiography shows normal left ventricular function with an ejection fraction of 55% and severe AR. In search of the etiology of AR, probably of acute onset, there was a dissecting flap giving a clue for dissection in the ascending aorta which is probably extending retrogradely causing this acute valvular event. Further, it was confirmed on computed tomography (CT) aortogram as Stanford type A aortic dissection, the cause of acute AR and hence heart failure.

Conclusion: The majority of left heart failure patients present with abnormal left ventricular function and chronic valvular diseases. However, acute valvular lesions presenting with normal left ventricular function are rare, in this case, the cause of heart failure was acute AR due to aortic dissection of the ascending aorta with retrograde extension to aortic root, where prompt diagnosis is a crucial step in deciding the line of management.

Effect of Sacubitril/Valsartan Combination Therapy on the Cardiovascular Parameters (Left Ventricular Ejection Fraction and NT-Pro-BNP) and Clinical Status of the Patient (New York Heart Association Class)

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Introduction: The novel combination of sacubitril/valsartan represents a new therapeutic approach in the management of heart failure with reduced ejection fraction (HFrEF). This combination represents a more effective method in reducing morbidity and mortality in HFrEF while preserving a safety profile comparable to standard angiotensin-converting enzyme inhibitors (ACEIs). The drug is reported to significantly reduce cardiovascular (CVS) mortality, admissions due to heart failure and significant improvement in CVS parameters [New York Heart Association (NYHA) grade and left ventricular ejection fraction (LVEF)] while having reduced incidence of adverse effects.

Objective: To identify the patients of HFrEF (LVEF <40%) and to observe the effect of sacubitril/valsartan combination therapy on the CVS parameters (LVEF and NT-Pro-BNP) and clinical status of the patient (NYHA class). To observe the effect of sacubitril/valsartan combination therapy on death and hospitalization from heart failure.

Methods: It is a single-centric observational prospective follow-up study with a sample size of 100 (as per inclusion and exclusion criteria). All subjects received sacubitril/valsartan, initial data was tabulated and processed separately. At the 6 months follow-up, both clinical as well as investigative parameters were rerecorded. The compiled data was analyzed as to whether sacubitril/valsartan combination has had any impact on the above CVS parameters.

Results:

- Comparison of NYHA grading revealed a statistically significant improvement ($p = 0.004$) at follow-up which translates to an overall improvement in quality of life.
- NT-Pro BNP levels showed a statistically significant decrease at follow-up. ($p = 0.00$).
- Post initiation of the drug, repeat LVEF values also showed a significant improvement statistically ($p = 0.001$).
- During the study, cardiac resynchronization therapy pacemaker/cardiac resynchronization therapy defibrillator (CRT-P/CRT-D) or implantable cardioverter-defibrillator (ICD) were inserted in 15 patients. Biventricular assist device and extracorporeal membrane oxygenation (ECMO) were done in a single patient.
- After enrolling in the study, four of the subjects underwent orthotropic heart transplants.
- Eleven patients succumbed to their illness even after initiation of sacubitril/valsartan.
- Four patients discontinued the medication due to side effects, most commonly persistent hyperkalemia followed by worsening renal function. None of the patients who discontinued the medication had any irreversible damage.

Conclusion: The clinical observational study conducted at our tertiary care center yields similar results in comparison to the PARADIGM-HF trial. This study confirms that sacubitril/valsartan, which is an angiotensin receptor neprilysin inhibitor when introduced in HFrEF patients, in whom even after optimal therapy the symptoms persist, significant improvement in ejection fraction, reduction in NT-Pro BNP values and significant symptom relief, that is, reduction in NYHA grade is observed.

Cardiac Scintigraphy with Technetium-99m-Labelled Pyrophosphate Tracer For Diagnosing Suspected Cardiac Amyloidosis of Transthyretin Amyloidosis Type

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Introduction: Cardiac transthyretin amyloidosis (ATTR) is an often underdiagnosed disease that can lead to significant morbidity and mortality for patients. In recent years, technetium-99m pyrophosphate scintigraphy [pyrophosphate (PYP)] imaging has become a standard-of-care diagnostic tool to help clinicians identify this disease. Since nuclear scintigraphy is underused, diagnosis and treatment of transthyretin amyloidosis cardiac amyloidosis (ATTR-CA) are often delayed.

Data from India are lacking regarding cardiac amyloid except for isolated case reports. Most diseases in India have a different profile compared to the West.

With newly emerging therapies for ATTR cardiomyopathy, it is critical to identify patients who are eligible for therapy as early as possible. At our institution, we sought to describe the frequency of PYP scanning and how it has impacted the management of a patient suspected to have amyloid cardiomyopathy. While endomyocardial biopsy is considered a gold standard for diagnosis, this procedure poses potential risks including pericardial tamponade, arrhythmia, hematoma, and other morbidities. Thus, noninvasive studies are crucial to evaluate patients for the presence of cardiac amyloidosis. Findings, such as increased ventricular wall thickness on echocardiography, delayed enhancement pattern on cardiac magnetic resonance imaging (MRI), and elevations in cardiac biomarkers, have been associated with cardiac amyloidosis, but on their own are not diagnostic. In recent years, technetium-99m pyrophosphate scintigraphy (PYP) imaging has emerged as a sensitive and specific imaging modality to diagnose ATTR cardiac amyloidosis. This noninvasive nuclear imaging study poses little to no risk to the patient while also providing important information.

Case series: This case series discusses various clinical profiles and investigational features of technetium-99m pyrophosphate scintigraphy (PYP) imaging in 10 patients who presented with cardiac involvement of wild-type ATTR amyloidosis in a tertiary care center in South India.

Conclusion: Transthyretin amyloidosis cardiac amyloidosis (ATTR-CA) was thought to be a rare disease, and work over the last decade has shown that it is far more common than was previously suspected. Most patients with cardiac amyloidosis (CA) see multiple physicians over a period of months to years before a correct diagnosis is made. The benefits of ATTR-stabilizing therapy are likely higher in patients with earlier-stage disease before extensive end-organ damage has occurred. Hence, technetium-99m pyrophosphate scintigraphy (PYP) helps in timely diagnosis and management.

Utility of Coronary Physiology Study (Resting Full Cycle Ratio and Fractional Flow Reserve) in Subclinical Anginal Lesions in Young Patients Presenting with Coronary Artery Disease

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Introduction: Invasive coronary angiography is generally used to diagnose significant coronary artery disease (CAD). Coronary physiology tests can be integrated into the diagnostic strategy to create a visual assessment of a lesion and its physiological significance. Fractional flow reserve (FFR) measures the pressure in a healthy proximal coronary segment. The resting full-cycle ratio is the lowest pressure distal to the stenosis during the entire cardiac cycle.

Aim: The assessment of "intermediate" blockages in young patients using FFR/resting full-cycle ratio (RFR), to identify functionally significant coronary stenosis.

Objective: To examine the selected cases and determine the mode of treatment using FFR/RFR.

Materials and methods: This is a case series of 10 cases. Patient age groups varying from 40 to 50 years diagnosed with myocardial infarction (MI) using electrocardiogram (ECG) and two-dimensional (2D) echo. Invasive coronary angiography (ICA) is done to know the stenotic lesions. Further FFR/RFR is done in c/o intermediate stenotic lesions to plan the treatment protocol.

Results: Values of ≤0.80 for FFR and ≤0.89 for instantaneous wave-free ratio (iFR)/RFR were considered positive for ischemia. Patients with these values can be diverted to medical therapy safely without surgical interventions.

Conclusion: The ability of FFR to determine lesions benefitting from stenting or medically offers the possibility of a patient-tailored approach.

Rationale and Study Design of Real-World Effectiveness and Safety of Torsemide and Spironolactone Fixed Dose Combination in Indian Heart Failure Patients (RESTORE-HF Study): A Prospective, Longitudinal, Multicenter, Observational Study

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Background: Heart failure (HF) is responsible for 1.8 million hospitalizations annually in India. Effective control of congestion or fluid accumulation is the mainstay of HF management. Recent HF guidelines recommend the use of loop diuretics (such as torsemide) as the principal pharmacologic therapy for decongestion in HF management. Mineralocorticoid receptor antagonists (MRAs) such as spironolactone blocks aldosterone to minimize fluid retention, relieve symptoms, and lower HF mortality and hospitalizations. The MRAs are recommended by the European Society of Cardiology (ESC) and American College of Cardiology (ACC) guidelines (class I-A) for the management of HF with reduced ejection fraction (HFrEF). When taken as a fixed-dose combination (FDC), torsemide and spironolactone may synergistically manage fluid retention and improve HF outcomes. While torsemide and spironolactone are widely administered individually for HF, evidence of their usage as an FDC is limited.

Methods: Real-world effectiveness and safety of torsemide and spironolactone FDC in Indian heart failure patients (RESTORE-HF study) is a prospective, longitudinal, multicenter, observational study. The objective of the study is to evaluate the effectiveness and safety of torsemide and spironolactone FDC in HF. Overall, 3,000 HF patients will be included from 150 study sites across India. The primary endpoint of this study is to evaluate the change in body weight from baseline to 3 weeks. The secondary endpoint is to evaluate the functional effectiveness through a change in the New York Heart Association (NYHA) functional class from baseline to 3 weeks, to evaluate the safety of the FDC, and to analyze the demographic characteristics, comorbidities, and concomitant medications in HF patients. Data will be recorded from the

time point when the patient was initiated on torsemide plus spironolactone FDC as part of routine clinical practice.

Conclusion: The RESTORE-HF study is expected to reveal the real-world effectiveness and safety of the FDC of torsemide and spironolactone in HF patients. Moreover, the study will identify the demographics, comorbidities, and clinical and laboratory parameters of HF patients in India.

Current Preference Toward the Use of Fixed Dose Combinations of Quadruple Therapy in Heart Failure Management: A Cross-Sectional Study Among Indian Cardiologists

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Background: Quadruple therapy plays a key role, in heart failure (HF) management, and the latest mantra is "four therapies on board in 4 weeks." At present, there is no fixed-dose combination (FDC) of these foundational therapies existing in India.

Aim: To understand Indian cardiologist's preference for FDC of quadruple therapy in HF management.

Methods: A cross-sectional, questionnaire-based survey was conducted between December 2022 and February 2023 among cardiologists from India.

Results: A total of 82 cardiologists participated in the survey. Two-thirds of the participating cardiologists (66%) strongly agreed with the need for FDC of HF pillar drugs while 31% held a neutral opinion. Sodium-glucose cotransporter 2 inhibitors (SGLT2i) based FDC were most preferred (40%) followed by angiotensin receptor neprilysin inhibitor (ARNI) (31%) and beta blocker (BB) (29%) based FDC. With regard to the dose strengths of combinations, most clinicians (61%) opined there was a need for both high and low doses while one-third (33%) felt low dose strength FDC to be sufficient. With reference to the place in therapy, over half of cardiologists (52%) suggested the introduction of FDC after stabilization with free pills while others (44%) suggested initiation of therapy with FDC. A large majority of cardiologists (84%) strongly agreed that the use of FDC will simplify dosage regimens and improve medication adherence with HF patients.

Conclusion: The findings of this real-world survey suggest the preference of Indian cardiologists toward the need for FDC of quadruple therapy in HF management.

Geriatric Heart Failure Patients Management: Indian Perspective

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Background: As per the United Nations (UN) world's population prospect 2022, India's elderly population is growing faster than before. The percentage of the elderly population in the country is projected to double to over 20% of the total population by 2050.[1] Heart failure (HF) is a prevalent cardiovascular condition among the elderly, with a majority of hospital admissions involving individuals aged 75 years or older. More than 80% of HF patients fall within the age group of 65 and above. The diagnosis and treatment of HF in the elderly can be intricate, but with the appropriate clinical expertise, most cases of HF in geriatric patients can be accurately identified and effectively managed.[2] In older individuals, HF is intricately connected to age-related processes, which encompass physical decline, and often, challenges extending beyond the purely medical aspects, including social, psychological, and behavioral dimensions of illness. Factors like frailty, depression, cognitive impairment, nutritional status, and aligning with the patient's goals of care all play unique and vital roles in determining the effectiveness of medical interventions.[3] Thus, there is a need for a multidimensional approach to the management of HF in geriatric age group patients.

Aim: To analyze the challenges and solutions related to HF management in geriatric age cohorts in India.

Case summary: Analysis of existing literature and medical databases was performed to gather data on the management of geriatric HF patients in India. The study also involved an assessment of clinical guidelines and literature relevant to this demographic. A wide range of sources was examined to provide a comprehensive overview of the challenges and strategies associated with HF management in the geriatric population. The results of this study indicated several key findings specific to the Indian geriatric population with HF. Notably, there was a significant underutilization of guideline-recommended medications[4,5] of four foundational drugs (i.e., sodium-glucose cotransporter-2 inhibitors, beta-blockers, angiotensin receptor blockers with neprilysin inhibitors, mineralocorticoid receptor antagonists) leading to an increased rate of hospitalization and mortality.[6] Although most of the chronic heart failure (CHF) patients are aged 75 and above, the typical age of participants in clinical trials has been notably younger, with an average age of 61 years. This lack of comprehensive data complicates the decision-making process for healthcare providers when it comes to treatment choices.[7] Beyond solely relying on pharmacological interventions, there is a distinct requirement for a holistic domain management approach (as illustrated in Table1) for geriatric HF patients. This necessity arises from the intricate interaction of medical variables, the natural process of physiological aging, cognitive and physical capacities, and the socio-environmental factors that collectively influence the health outcomes of elderly individuals with HF, regardless of their ejection fraction.[3]

Table 1: Domain management approach to HF in the geriatric patient[3]

Sr. no.	Domain	Approach
1.	Medical	• Evaluate stage and etiology of HF • Consider challenges in pharmacological treatment, focus on polypharmacy, and consider the impact of comorbidities: sleep apnea, kidney disease, diabetes. • Access for malnutrition
2.	Mind and emotion	• Evaluate cognition; if impaired, evaluate the impact on self-management skills • Screen for depression; consider treatment
3.	Physical function	• Screen for frailty: Slowness, weakness, shrinking, inactivity, exhaustion • Evaluate mobility; consider fall risk
4.	Social environment	• Inquire about the extent of social support at home, and consider engaging in community-based care services • Inquire about financial resources for prescription medications

The strategies outlined in this discussion can aid healthcare providers in providing effective care for delicate and complex elderly individuals suffering from HF. We are of the opinion that clinicians who adopt this approach have the potential to enhance the health outcomes of older adults with HF. We observed when initiating these miracle pills to HF patients after following for a few months we saw improvement in electrocardiogram (ECG) as well as reduced levels of cardiac biomarkers like N-terminal pro-brain natriuretic peptide (NT-pro-BNP) levels also improvement in left ventricle (LV) functions as well as right ventricle (RV) functions improvement in ejection fraction and quality of life.

Conclusion: Our study on the management of geriatric HF patients in India revealed significant underutilization of guideline-recommended medications, potentially contributing to increased hospitalization and mortality rates. The discrepancy between the age of patients in clinical trials and the actual geriatric HF patient population complicates treatment decision-making for healthcare providers. Our findings emphasize the need for a holistic domain management approach to address the complex interplay of medical, physiological, cognitive, and socio-environmental factors affecting the health outcomes of elderly HF patients. Implementing these provided management strategies is crucial for effectively caring for this vulnerable and intricate population.

Prescription Audit of Chronic Heart Failure Patients Treated at Primary and Secondary Care Level Admitted with Acute Decompensated Heart Failure

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Introduction: Heart failure is a complex pathology that involves many different processes with complicated diagnostic and therapeutic problems. It continues to be a major public health problem with an estimated global prevalence of over 30 million patients.

Materials and methods: A total of 110 patients who had a diagnosis of heart failure with reduced ejection fraction and were admitted with acute decompensated heart failure were studied over a period of 16 months. A prescription audit of these patients was carried out and a precipitating factor for acute decompensation was also sought for. Duration of treatment and adverse events during the treatment were also analyzed.

Observation: At the end of the study analysis, we observed that only 10% patients were on guideline-directed medical therapy (GDMT) for heart failure. About 66.2% patients were on beta-blockers whereas only 32.2% were on mineralocorticoid receptor antagonists. About 18.77% patients were on angiotensin receptor neprilysin inhibitor and 13.22% patients were on sodium-glucose co-transporter-2 inhibitors. As far as factors leading to decompensation were concerned, 28% patients reported discontinuation of one or more drugs leading to probable decompensation, 16% patients were reported to be on nonsteroidal anti-inflammatory drugs for various painful conditions which were prescribed at the community level, 8% patients had a history of viral/bacterial respiratory tract infection leading to acute worsening. About 38% patients also reported to be on complementary and alternative medicine (CAM). As far as adverse effects were concerned 31% patients reported a history of dysuria due to sodium-glucose co-transporter-2 inhibitors, 10% patients had a history of hyperkalemia and 6.1% patients had symptomatic hypotension possibly due to angiotensin receptor neprilysin inhibitors leading to discontinuation.

Conclusion: The prevalence of patients receiving GDMT was 10%. Use of nonsteroidal anti-inflammatory drugs and CAM contributed significantly to decompensation in certain groups of patients. Also, discontinuation was an important cause of acute episodes of heart failure. As far as adverse events were concerned cystitis, hyperkalemia, and symptomatic hypotension were the foremost factors.

Echocardiographic Assessment of Left Ventricular Hypertrophy in Patients of Chronic Renal Failure

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Introduction: Left ventricular hypertrophy (LVH) is a major echocardiographic finding in chronic renal failure (CRF). Prevalence of LVH increases with a decline in renal function. LVH is an independent predictor of survival, present in approximately 70% of patients at the initiation of dialysis. Echocardiography (ECHO) should be performed early in the course of CRF and may be valuable in the monitoring of therapy of this patient.

Materials and methods: A total of 100 chronic renal failure patients admitted or who visited on an outpatient basis to Mamata Medical College, Khammam, over a period of 1 year formed the study population. Detailed history, clinical evaluation, laboratory investigations, and ECHO were carried out.

Observation: The prevalence of LVH in chronic renal failure was 69%, consisting of 67% males and 33% females, majority of the patients' age-group was between 51–60 years and 61–70 years. In the present study, we found that left ventricular mass index (LVMI) which reflects LVH showed a progressive rise with an increase in severity of renal failure with 17% of the mild CRF category having LVH compared to 26% of the moderate CRF category and 57% of patients of severe CRF category having LVH.

Conclusion: The present study shows that patients with CRF have higher LVMI and a higher prevalence of LVH, which is more marked in patients with severe CRF. The high prevalence of LVH in these populations on ECHO implies that these patients require detailed cardiovascular evaluation despite the absence of symptoms, and also that various efforts aimed at the prevention and control of LVH should be started early during the course of renal insufficiency.

A Case of Coronary Artery Disease with Allergic Bronchopulmonary Disease

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Introduction: Allergic bronchopulmonary aspergillosis (ABPA) is the best-known allergic manifestation of *Aspergillus*-related hypersensitivity pulmonary disorders. Most patients present with poorly controlled asthma and diagnosis can be made on the basis of clinical, immunological, and radiological grounds.

Case description: A 64-year-old male patient presented with shortness of breath of New York Heart Association (NYHA) class 4 and cough with sputum for 5 days, fever intermittent in nature for 5 days, and a history of shoulder pain with sweating 5 days back. The patient has a known case of asthma with seasonal shortness of breath for 12 years and was on medication. He was a chronic smoker (10 pack years) with an insignificant family history. On examination, the patient was in respiratory distress with no signs of pallor, cyanosis, edema, and icterus. Vitals—temperature: 101°F; heart rate (HR): 110 beats per minute; blood pressure (BP): 130/90 mm Hg; respiratory rate (RR): 44

cycles per minute; SpO_2: 80% on room air. On auscultation, cardiac examination was normal with bilateral rhonchi and crepitations present.

Investigations: Complete blood count (CBP)—eosinophilia (8%) and absolute eosinophil count 600 cells/µL. Electrocardiogram (ECG) ST-elevation in anterior chest leads to high sensitive troponin I—27.2 pg/mL. Chest X-ray showed bilateral patchy infiltrates with prominent hilar and bronchovascular margins. High-resolution computed tomography (HRCT) showed central bronchiectasis with mucous impaction in peripheral bronchi. Bilateral consolidatory changes with surrounded ground glass opacities in lower lobes. Total serum IgE—2268 IU/mL. Elevated IgE levels against *Aspergillus fumigatus*.

Discussion: Allergic bronchopulmonary aspergillosis (ABPA) is an idiopathic inflammatory lung disease with a complex hypersensitivity reaction in response to the colonization of airways with *Aspergillus fumigatus*. It has immunologic features of immediate hypersensitivity (type 1), antigen-antibody complex (type 3), and cell-mediated immunity (type 4). Management involves oral steroids, antifungals, and close monitoring for detecting relapses.

Conclusion: Any asthmatic not responding to regular treatment, pulmonary infiltrates with eosinophilia think of ABPA. IgE is worth it to get in all asthmatics, serum *Aspergillus* IgE and IgG are more specific. HRCT is more useful.

A Case of Atrial Septal Defect with Aortic Valve Infective Endocarditis with Acute Ischemic Stroke and Septic Arthritis

Kranthi Menmula

Introduction: Atrial septal defect is a common congenital abnormality, which accounts for 20–30% of all adult patients with congenital heart disease. Congenital heart diseases are a major risk factor for endocarditis. Left-sided native valve infective endocarditis is known to cause brain infracts.

Case description: A 23-year-old male presented with weakness of right limbs (upper limb > lower limb), painful swelling of the right thumb and left index finger, easy fatigability, and exertional dyspnea. On examination, the patient had power of 4/5 on right side and 5/5 on left side, with no sensory deficits and painful and restricted movement of the right thumb and left index finger. Cardiovascular examination showed early diastolic murmur, electrocardiogram (ECG) showed left ventricular hypertrophy (LVH), and two-dimensional (2D) echocardiography showed an interatrial septal defect of 8 mm and aortic valvular vegetation. Blood culture and sensitivity showed true bacteremia with *Streptococcus gordonii*; Duke's criteria was used to diagnose infective endocarditis and the patient was started on medication based on culture sensitivity reports; following which the symptoms of painful joints and started recovering. The patient was advised to follow up for atrial septal defect closure and aortic valvular replacement.

Conclusion: Infective endocarditis is a severe infection characterized by a poor prognosis if unnoticed. It has a higher need for surgical management after infective control. As in our case, diagnosis is challenging, and a multidisciplinary approach is of paramount importance.

Case of Cardiac Tamponade in the Setting of Anterior Mediastinal Mass (Thymoma)

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Introduction: Thymoma is the most common neoplasm originating in the anterior mediastinum and accounts for a quarter of all mediastinal tumors. A pericardial effusion is an uncommon initial manifestation present in approximately 20% of patients. However, our patient had massive pericardial effusions causing a cardiac tamponade with left pleural effusion.

Case description: A 23-year-old male with no past medical history presented to the emergency room with fatigue, shortness of breath, and chest pain.

On physical examination, he was hypotensive and tachycardic with a heart rate of 132 beats per minute, had jugular vein distension (14 cm), muffled heart sounds, and pulsus paradoxus.

Electrocardiography (ECG) showed sinus tachycardia, and low-voltage QRS complexes. A chest X-ray was suggestive of cardiomegaly with left-sided pleural effusion, a computed tomography (CT) scan of the chest revealed a large anterior mediastinal mass with extensive left pleural effusion and massive pericardial effusion. An emergent pericardiocentesis was performed with drainage of 1500 mL of pericardial fluid. The immunohistochemistry (IHC) patterns of the epithelial cells collected from pericardial to pleural fluid were consistent with an invasive thymoma.

Conclusion: The patient's tumor was deemed surgically unresectable due to its encasement of arch of aorta and its branches. In view of his extensive disease and inaccessibility of surgical resection, a decision was made to initiate induction chemotherapy with cyclophosphamide, doxorubicin, and cisplatin (CAP regimen) followed by radiotherapy.

Correlation of Serum Uric Acid and Killip Class in Acute Myocardial Infarction

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Introduction: Acute myocardial infarction is the leading cause of mortality in both developed and developing nations such as India. Killip class is a bedside assessment test that is useful in predicting mortality in acute myocardial infarction. Hyperuricemia is associated with increased cardiovascular mortality in high-risk patients. So, our goal is to find out any quantal relationship between the Killip class and serum uric acid in acute myocardial infarction in our population.

Materials and methods: A hospital-based cross-sectional study was conducted in the Department of General Medicine Navodaya Medical College & Research Centre, Raichur among 70 people over a period of 1 year with ST-elevation myocardial infarction (STEMI) or non-ST-elevation myocardial infarction (NSTEMI).

Results: Out of 70 patients, 80% of the patients were under Killip class I and II at the time of admission, and 20% of the patients were on Killip class III and IV at the time of admission. Uric acid level was significantly higher among patients in class IV (7.58), in class III (7.25) than patients in class II (5.25) and class I (4.47). The results in our study show that serum uric acid levels are high in Killip class III and IV in acute myocardial infarction patients.

Conclusion: Hyperuricemia is associated with Killip class III and IV in acute myocardial infarction patients. Further study on combination of Killip class and serum uric acid level in predicting mortality will be informative and useful.

Critical Care

Diagnostic and Prognostic Utility of Neutrophil CD64 and Monocyte Human Leukocyte Antigen-DR in Adult Sepsis Patients

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Background: Diagnosis and prognostication of patients with sepsis at the earliest time point is vital for appropriate patient management and judicious resource utilization. Cell surface markers like neutrophil CD64 (nCD64), monocyte human leukocyte antigen-DR (mHLA-DR), and sepsis index (SI) (ratio of nCD64 and mHLA-DR) might perform better than conventional biomarkers like procalcitonin.

Objective: To evaluate the diagnostic and prognostic accuracy of nCD64, mHLA-DR, and SI in patients with sepsis according to sepsis-3 criteria in a tertiary care center.

Methods: We undertook a prospective observational study among 50 cases diagnosed with sepsis according to sepsis-3 criteria, 25 nonseptic patients, and 25 healthy individuals as controls. The study was a monocentric study conducted in a tertiary care center in India. Fifty consenting patients with sepsis underwent flowcytometric estimation of nCD64 and mHLA-DR and serum procalcitonin within 24 hours of admission, along with the assessment of Sequential Organ Failure Assessment (SOFA) and Acute Physiology and Chronic Health Evaluation (APACHE-II) score on the day of admission and after 24 hours. The nonseptic and healthy cohort also underwent flow cytometric estimation of nCD64 and mHLA-DR. The authors followed the patients until death or discharge from the hospital.

Results: The sepsis cohort had significantly higher nCD64 and lower mHLA-DR expression than both control groups (*p*-value: <0.001). The sensitivity and specificity of nCD64 ABC (antibodies bound per cell) for diagnosis of sepsis with a cutoff of 1152.16 were 94 and 74%, respectively. Similarly, for the SI (cutoff—11.36), the sensitivity and specificity for the diagnosis of sepsis were 88 and 86%, respectively. Out of 50 patients with sepsis, nCD64 detected 18 cases missed with serum procalcitonin (cutoff used—0.5 ng/mL). Among flow cytometric variables, the SI had a statistically significant association with hospital mortality on univariate analysis. However, overall, only the baseline SOFA score was independently associated with hospital mortality on multivariate logistic regression analysis.

Conclusion: nCD64 and SI are good diagnostic markers in patients with sepsis and should be considered for early diagnosis of sepsis. Both these variables performed much better than serum procalcitonin. Though the sepsis index was significantly higher in nonsurvivors, only the baseline SOFA score as an independent parameter had a statistically significant association with hospital mortality. The combination of nCD64 and sepsis index should be used for the early diagnosis of sepsis in adult patients as it will reduce the unnecessary delay in the initiation of antibiotics.

Study of Microalbuminuria in Sepsis with Reference to Apache II Score

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Introduction: Sepsis has very high morbidity and mortality, which leads to major healthcare burden in the world. In sepsis, there is potent activation of inflammatory cascade that leads to endothelial dysfunction and increase in systemic capillary permeability. In kidney, there is a loss of barrier integrity, and capillary leak in the glomerulus results in increased excretion of albumin in the urine. This study was done to evaluate the degree of microalbuminuria in sepsis in correlation with APACHE II score and to test whether the degree of microalbuminuria could predict mortality in critically ill sepsis patients.

Aims and objectives: (1) To study the correlation between the degree of microalbuminuria and severity of sepsis; (2) to evaluate whether the degree of microalbuminuria could predict mortality in sepsis; (3) to develop a simple, inexpensive, and dynamic marker of critical illness.

Materials and methods: Prospective study was conducted on 50 patients admitted to medical intensive care unit (ICU) in Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar, for a study period of 1 year between June 2022 and May 2023. Spot urine sample was collected within 6 hours and at 24 hours of admission to medical ICU. Sample tested for urine microalbumin by using immunoturbidimetric method and for urine creatinine by Jaffee method. Urine albumin:creatinine ratio (ACR) was calculated (at 6 hours ACR-1 and at 24 hours ACR-2). APACHE II scoring was done within 24 hours of admission.

Inclusion criteria: Patients admitted to medical ICU in Chalmeda Anand Rao Institute of Medical Sciences with features of systemic inflammatory response syndrome (SIRS) and suspected infection.

Systemic inflammatory response syndrome (SIRS): Presence of two or more of the following:

Fever (oral temperature >38°C) or hypothermia (<36°C).

Tachycardia (heart rate >90 beats per minute).

Tachypnoea (>24 beats per minute).

Leucocytosis (>12,000/µL), leukopenia (<4.000/µL), or presence of >10% bands.

Observations: The present study included 50 patients, among which 31 were males and 19 were females. Mean age was 43.5 years. Mortality was 38%. Mortality was more among male patients than in female. APACHE II score ranges from 6 to 37; mean APACHE II among survivors was 16.35 with standard deviation of 6.78, and among nonsurvivors was 25.47 with standard deviation of 6.93 and with *p*-value of <0.0001 for predicting mortality. Urine ACR 1 was 74.06 ± 20.83 µg/mg among survivors and 164.53 ± 46.61 µg/mg among nonsurvivors, and ACR 2 was 45.81 ± 17.92 µg/mg among survivors and 157.84 ± 36.96 µg/mg among nonsurvivors. Both were statistically significant, with *p*-value of 0.0001 for predicting mortality. The degree of microalbuminuria correlates with disease severity.

Conclusion: Presence of significant microalbuminuria at admission and persistence of microalbuminuria at 24 hours of admission correlated well with mortality as comparable to APACHE II score. Survival rate in patients with severe sepsis can be improved by early institution of intensive therapy. Microalbuminuria is an inexpensive rapid diagnostic as well as prognostic tool. Hence, microalbuminuria can be used as dynamic marker of sepsis.

Comparison of Red Cell Distribution Width with Sequential Organ Failure Assessment Score as a Prognostic Marker of Sepsis in Elderly Patient

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Introduction: Sepsis and septic shock are some of the leading causes of death worldwide. According to data from the Centers for Disease Control and Prevention, sepsis is the leading cause of death in noncoronary ICU patients.

The degree of severity is most often quantified by the sequential organ failure assessment (SOFA) score, which can predict the severity and outcome of multiple organ failure. It would be advantageous to identify a biomarker that would be associated with the degree of severity in patients with sepsis.

Materials and methods: Study period—June 2022 to May 2022. Sample size—90. Study design—prospective observational study.

Inclusion criteria: Patients aged >60 years admitted to intensive care units, who met the criteria of sepsis (according to surviving Sepsis Campaign: International Guidelines for Management of Severe Sepsis and Septic Shock), were included in the study.

Observations: Most of the patients were in the age-group of 61–70 years (55%). Out of 90 patients, 56 (62%) were males and 34 (37%) were females. Fever (93%) was the most common presenting symptom, followed by breathlessness (35%) and cough (40%). Diabetes mellitus and hypertension were the most common comorbid conditions. Bronchopneumonia (33%) and urosepsis (30%) were the predominant causes of sepsis. Most of the patients (62.2%) had SOFA scores in the range of 5–10. Out of 90 patients, RDW was >13.75 in 54 and <13.75 in 36 patients. In predicting mortality of elderly patients with sepsis, RDW has a sensitivity of 82% and specificity of 78%. SOFA score had sensitivity of 95% and specificity of 76%.

Conclusion: Established prognostic markers of sepsis like SOFA score require various parameters to be measured and calculated, which can be cumbersome. RDW as a part of complete blood count is tested in all patients with sepsis. Hence, in elderly patients in sepsis, RDW can be used as a biomarker, which is associated with the degree of severity of sepsis.

Role of Inhaled Amikacin to Prevent Ventilator-Associated Pneumonia

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Introduction: Ventilator-associated pneumonia (VAP) is a serious complication that affects patients on mechanical ventilation in healthcare settings. It is associated with high morbidity and mortality rates and poses a significant challenge to medical professionals. In the quest to combat VAP, various strategies have been developed, and one emerging approach is the use of inhaled amikacin. This antibiotic is administered directly to the lungs, where VAP typically occurs, with the aim of preventing or treating the infection. In this discussion, we will explore the role of inhaled amikacin in preventing VAP, including its mechanisms, benefits, and considerations for its use in clinical practice.

Materials and methods: A prospective randomized controlled trial was conducted to evaluate inhaled amikacin's role in preventing VAP in adult intensive care unit (ICU) patients.

In this multicenter, double-blinded, randomized, controlled, and superiority trial, we assigned critically ill adults who had been undergoing invasive mechanical ventilation for at least 72 hours to receive inhaled amikacin at a dose of 20 mg per kilogram of ideal body weight once daily or to receive placebo for 3 days. The primary outcome was a first episode of VAP during 28 days of follow-up. Safety was assessed.

Observation: The study observed a significant reduction in VAP incidence in patients receiving inhaled amikacin compared to the control group, suggesting a potential preventive role. Microbiological analysis indicated increased sensitivity of the predominant pathogens to amikacin. Patients in the treatment group exhibited improved clinical outcomes, while adverse effects were minimal. These observations support the consideration of inhaled amikacin as a VAP prevention strategy, particularly in cases involving multidrug-resistant pathogens.

Conclusion: Among patients who had undergone mechanical ventilation for at least 3 days, a subsequent 3-day course of inhaled amikacin reduced the burden of VAP during 28 days of follow-up.

Impact of Euvolemic Hyponatremia on Morbidity and Mortality in Intensive Care Unit Patients

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Background: Hyponatremia, defined as serum sodium levels <135 mEq/L, is the most common electrolyte disturbance in hospitalized patients. Its presence is associated with worsened prognosis in intensive care unit (ICU) patients. Early recognition and intervention are essential for improving outcomes.

Objectives: Investigate the morbidity and mortality of ICU patients with euvolemic hyponatremia.

Assess hyponatremia as an independent prognostic factor.

Methods: Study included 100 ICU patients at Osmania General Hospital. Patients with euvolemic hyponatremia, confirmed through clinical, biochemical, and radiological evaluations, were analyzed for morbidity and mortality and compared with control with normal sodium levels (135–145).

Results: Middle-aged males had a higher preponderance. A total of 84 patients were symptomatic, while 16 were asymptomatic. Complications included altered sensorium (46%), vomiting (14.5%), hiccup (10.5%), seizures (8%), and headache (5%). Severe cases presented with seizures and altered sensorium (83%), while moderate cases showed higher incidence of vomiting, hiccup, and seizures (82%). In mild cases, most patients were asymptomatic or had vomiting. Severe hyponatremia had the highest mortality (39%), followed by moderate hyponatremia (12.5%).

Conclusion: Hyponatremia is a common electrolyte imbalance in ICU patients, significantly increasing morbidity and mortality. Early recognition and intervention are crucial for improving outcomes. This study underscores the importance of hyponatremia as an independent prognostic factor for predicting prognosis in ICU patients.

Diabetes

Atherogenic Index of Plasma as a Cardiovascular Risk Factor in Prediabetic Patients as Compared to Diabetic Patients

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Introduction: The atherogenic index of plasma (AIP) is a good predictor of the risk of atherosclerosis and coronary heart disease. The AIP is related to the size of antiatherosclerotic lipoprotein particles. This measure thus reflects the balance between protective and atherogenic lipoproteins.

Some studies have suggested that the visceral fat area in patients with type 2 diabetes mellitus (T2DM) is associated with AIP. High AIP may also increase the risk of T2DM. Patients with type 2 diabetes with metabolic syndrome also have higher AIP than T2DM patients without metabolic syndrome. There are also high chances of high AIP in prediabetic population as there is increasing cardiovascular (CV) mortality in prediabetic population also.

Methodology: This study included 162 outpatient department and inpatient department patients of prediabetic and diabetic. We measured body mass index/low-density lipoprotein cholesterol (LDL-C), high-density lipoprotein cholesterol (HDL-C), total cholesterol (TC), and triglyceride (TG) analysis, fasting blood sugar, and postprandial blood sugar after overnight fasting.

Atherogenic index of plasma (AIP) was calculated as log ratio of TG and HDL [Log (TG/HDL)] and CV risk stratification as per Association of Physicians of India (API) was done based on World Health Organization (WHO) guidelines.

Data was analyzed using Statistical Package for the Social Sciences (SPSS) V2O.0 for the total study population and compared between diabetic and prediabetic patients. Continuous data was analyzed using student *t*-test, Pearson's correlation test, and analysis of variance (ANOVA). Categorical data was analyzed using Chi-squared test. *p*-value < 005 was considered significant.

Results and discussion: The study was done on 59 number of diabetic and 102 prediabetic patients. Diabetic patients in age-group of 25–35 years of age showed significantly higher mean AIP compared to the prediabetic population in the same age group ($p = 0.04$). No difference was noted in age-groups of 35–50 years and >50 years (both $p > 0.05$).

Proportion of patients with high-level TG was significantly higher in diabetic than in prediabetic population ($p = 0.02$). Analysis revealed no significant difference in proportion of patients with normal, borderline high or high LDL levels in the diabetic and prediabetic population.

Pearson's correlation test revealed significant correlation between AIP and total serum cholesterol in the study population ($p = 0.00$) and in the prediabetic population ($p = 0.00$).

The proportion of patients in the prediabetic population with medium to high risk based on AIP levels reveals alarming similarity to the diabetic population. Analysis of the lipid profile of the prediabetic population showed that 99.02% of the population was in the medium- and high-risk group for CV morbidity. This could raise a red flag for more detailed and comprehensive investigation of the CV profile of prediabetic population in practice. A significant regression equation is thus presented to calculate the AIP for a given patient based on serum cholesterol alone. Use of this regression equation is simple in the day of mobile calculators. Regression equation: AIP = 0.2709 + (0.0014 × total cholesterol).

Conclusion: About 99.02% of prediabetics are at elevated CV morbidity risk. Calculation of AIP in prediabetic patients is thus important to plan their future management. In a resource-constrained society like India, it would aid clinicians, especially in rural and low-income areas to estimate AIP using only serum cholesterol estimation.

The use of the presented regression equation is simple in the day of mobile calculators and can be used to educate, counsel patients, and individualize their treatment. The need, or otherwise, for early and/or aggressive CV assessment in the Indian prediabetic population warrants a multicentric study with a suitably large cohort to generate relevant guidelines.

A Tale of Salt and Sugar: Sodium-Glucose Cotransporter-2 Inhibitors

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Introduction: Diabetes mellitus is fast gaining the status of a potential epidemic in India with >74 million diabetic individuals currently diagnosed with the disease. Diabetes, thus, becomes a significant challenge to the health and well-being of individuals with the increasing number of people living with diabetes and at risk of developing the condition in India.

Sodium-glucose cotransporter 2 inhibitors are a new class of antidiabetic agents, when used as monotherapy or add-on therapy in patients with type 2 diabetes mellitus (T2DM) improved hemoglobin A1c (HbA1c), reduced body weight, systolic blood pressure (SBP), diastolic blood pressure (DBP), microalbuminuria, cardiovascular mortality, and heart failure hospitalizations across the spectrum of left ventricular ejection fraction (LVEF) [heart failure with reduced ejection fraction (HFrEf), heart failure with mid-range ejection fraction (HFmEf), and heart failure with preserved ejection fraction (HFpEF)].

Materials and methods: Single-center observational prospective follow-up study with a sample size of 130 (65 empagliflozin, 65 dapagliflozin) to study the comparative efficacy of empagliflozin and dapagliflozin on parameters like body mass index (BMI), hemoglobin A1c (HbA1c), low-density lipoprotein (LDL), total cholesterol, SBP, DBP, estimated glomerular filtration rate (eGFR), and LVEF over 6 months.

Observation: Maximum number of diabetic patients belonged to the age-group of 56–65 years in both groups (35.4% in dapagliflozin group and 38.46% in empagliflozin group), closely followed by 66–75 years in both groups (27.7% in dapagliflozin group and 26.15% in empagliflozin group). Mean age of the study population was found to be 61.42 years.

	Empagliflozin			Dapagliflozin		
	Mean	**Standard deviation**	***p*-value**	**Mean**	**Standard deviation**	***p*-value**
Baseline BMI	29.43	4.41	<0.001	29.71	3.91	<0.001
BMI at 6 months	26.78	3.88		27.13	3.44	
Baseline LDL	148.47	32.58	<0.001	155.16	30.8	<0.001
LDL at 6 months	135.16	36.74		135.53	32.8	
Baseline total cholesterol	234.05	54.0817	<0.001	242.4677	31.06193	<0.001
Total cholesterol at 6 months	138.04	63.34655		172.1129	41.4033	
Baseline HbA1c	8.77	1.35	<0.001	8.76	0.98	<0.001
HbA1c at 6 months	6.95	0.81		6.98	0.75	
Baseline serum creatinine	1.12	0.36	0.01	1.05	0.21	0.049
Serum creatinine at 6 months	0.97	0.25		0.95	0.32	
Baseline SBP	135.06	13.5	0.02	132.58	11.8	0.006
SBP at 6 months	128.58	10.8		126.7	12.4	
Baseline DBP	77.98	16.3	0.001	88.91	10.87	0.02
DBP at 6 months	73.17	9.76		85.11	7.8	

About 69.2%, that is, 45 patients were males in the dapagliflozin group and 67.7%, that is, 44 patients were males in the empagliflozin group. About 30.8%, that is, 20 patients were females in dapagliflozin group and 32.3%, that is, 21 patients were females in the empagliflozin group.

Maximum number of patients were found to have diabetes for a duration of 5–10 years in both groups, that is, 24 patients (36.9%) in the dapagliflozin group and 22 patients (33.8%) in the empagliflozin group.

Significant reduction in HbA1c ($p = 0.026$, 0.02) with both drugs was noted, with empagliflozin (1.9 ± 0.78%) being more efficacious than dapagliflozin (1.51 ± 0.61%). It was also observed that more the initial HbA1c, more is the reduction in HbA1c.

Significant reduction in BMI was noted with both drugs, both drugs being equally efficacious, empagliflozin (1.92 ± 0.78 kg/m^2) and dapagliflozin (2.57 ± 2.6 kg/m^2) ($p \leq 0.001$). It was noted that more the initial BMI, more is the reduction in BMI over a course of 6 months with both drugs.

Significant reduction in mean LDL ($p < 0.001$) and total cholesterol ($p < 0.001$) was noted with both drugs, empagliflozin being more efficacious than dapagliflozin.

It was observed that there was a significant reduction in total cholesterol with both drugs at 6 months follow-up. The reduction in total cholesterol levels was more with empagliflozin compared to dapagliflozin. Empagliflozin was found to be more efficacious in decreasing total cholesterol at 6 months follow-up.

Significant reduction in serum creatinine and improvement in eGFR was noted with both drugs ($p < 0.001$). There was no significant difference in mean creatinine reduction between both drugs. Both drugs were efficacious in decreasing serum creatinine levels.

Significant improvement in eGFR was noted with both drugs. It was observed that both drugs were efficacious in improving eGFR levels at 6 months follow-up.

It was observed that there was a significant improvement in the left ventricular ejection fraction in patients with heart failure with reduced ejection fraction with both dapagliflozin and empagliflozin ($p < 0.001$). However, there was no significant improvement in left ventricular ejection fraction in patients with heart failure with preserved ejection fraction.

Follow-up analysis of metabolic and biochemical profile at baseline and 6-month intervals with empagliflozin and dapagliflozin.

Conclusion: The clinical prospective follow-up study conducted at Jaslok Hospital & Research Center shows that dapagliflozin and empagliflozin, SGLT2 inhibitors, both help in improving not only blood sugar control in diabetics but also have significant positive outcomes in various other clinical, biochemical, and metabolic parameters. It was seen that there was significant improvement in blood glucose control as reflected by reduction in HbA1c with both drugs, empagliflozin being more efficacious than dapagliflozin. Patients also reported a significant loss of weight and improvement in BMI. Dapagliflozin and empagliflozin were both efficacious in improving the creatinine clearance over a period of 6 months.

Our study, in continuation with previous research done, shows that dapagliflozin and empagliflozin help in improving the clinical profile of a diabetic individual. We hence, supporting the latest guidelines in diabetic control, recommend that SGLT2 inhibitors should be a part of diabetic regimen of patients unless contraindicated and according to latest the American Diabetes Association (ADA) guidelines 2022.

10-Year Cardiovascular Risk as Predicted by QRISK®3 Calculator in Diabetic Patients Attending Tertiary Care Teaching Hospital of Central India and its Application to Stratify Statin Over-Users and Under-Users

Varnan Chandrawanshi

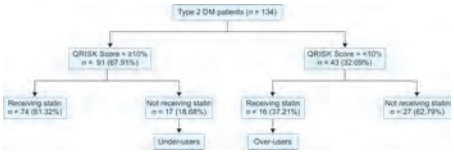
Background: Cardiovascular diseases (CVD) are important cause of morbidity and mortality in diabetic patients. As such, risk stratification is essential to identify the risk factors of CVD and provide early intervention. The QRISK®3 tool, recommended by the National Institute for Health and Care Excellence (NICE) guidelines, has the option to choose patient's ethnicity, which is not available in other tools. However, there is paucity of data regarding use of this tool in Indian population. Therefore, this study was planned to predict 10-year CVD risk using the QRISK®3 tool and to determine statin eligibility in diabetic patients.

Methods: We enrolled diabetic patients visiting our diabetic clinic in the study. We collected data from clinical to prescription records, as well as through patient interviews. We analyzed the data to determine the 10-year CVD risk using the QRISK®3 risk tool, which is available online. A cutoff QRISK score of 10%, as recommended by the NICE guidelines (2014), was used to stratify patients as "over-users" and "under-users." We also analyzed the data to determine any correlation between other risk factors and QRISK scores.

Results: Of 134 diabetic patients recruited in this study, 91 had a CVD risk score of ≥10%, of which 17 (18.68%) were categorized as "under-users," that is, in 81.32% patients, prescription of statins is justifiable, and 43 (32.09%) had CVD risk score<10%, of which 16 (37.21%) were categorized "over-users." Among patients, atorvastatin was the most commonly prescribed statin with frequency of 71.11%, of which 92.19% were medium intensity and 7.81% were high intensity; no low-intensity statin was prescribed.

Risk factors showing a positive correlation with QRISK score included duration of diabetes, age, blood pressure treatment, waist circumference, and non-high-density lipoprotein cholesterol. NICE guidelines (2014) reduced risk cutoff from 20 to 10%; we also analyzed the comparative data in our study.

Conclusion: QRISK score can be useful to predict 10-year CVD risk in the Indian population and to stratify patients as statin over-users and under-users. This tool can be used in the Indian setup to identify potential candidates for statin initiation and is preferable over American Heart Association (AHA).



Serum Magnesium Levels in Type 2 Diabetes Mellitus Patients with Special Reference to Long-Term Complications of Diabetes Mellitus

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Introduction: Diabetes is one of the most common noncommunicable diseases. Diabetes and its complications are the price paid due to increase in the life-expectancy coupled with concomitant increase in dietary affluence and decrease in physical activity.

Aims of the study: (1) To study serum magnesium levels and its effect on glycemic control and lipid profile of patients with type 2 diabetes mellitus (DM); (2) to study long-term effects of serum magnesium levels over micro- and macrovascular complication of DM; (3) to study the correlation of serum magnesium levels with dyslipidemia and glycemic control.

Materials and methods: A total of 100 type 2 DM patients in the age-group of 30–80 years, including patients with nephropathy and retinopathy, were taken. Excluding patients having type 1 DM, other renal, cardiac, and endocrinal diseases, those on magnesium-containing antacids, lipid-lowering drugs, and chronic diuretics. All were subjected to detailed history-taking, including duration of DM, treatment mode, symptoms, associated diseases, and physical and neurological examination. Additionally, an electrocardiogram (ECG) was performed with fasting blood sugar (FBS) and postprandial blood sugar (PPBS) measurements. Serum magnesium was estimated by the calmagite dye method.

Results: A total of 29 patients had hypomagnesemia (<1.7 mEq/L). Correlation between duration of DM and hypomagnesemia is significant at p-value 0.016. Prevalence of hypomagnesemia with retinopathy is significant with p-value 0.031. Prevalence of hypomagnesemia with neuropathy is significant with p-value 0.0002. A significant inverse correlation was observed between hypomagnesemia and hemoglobin A1c (HbA1C) level with p-value 0.038.

Conclusion: Hypomagnesemia was not significantly associated with age, sex, and mode of diabetes treatment. Duration of DM had a significantly inverse correlation with serum magnesium concentration. Prevalence of hypomagnesemia was significantly higher in patients with microvascular diabetic complications compared to diabetes with no complications.

To Evaluate the Relationship of Risk Factor Between Diabetes Mellitus and Thyroid Dysfunction (Thyrobetes) in Jawaharlal Nehru University Hospital, Jaipur

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Background: Thyroid dysfunction and diabetes are the most common cause of endocrine diseases. More than a half billion people are living with diabetes. The global prevalence of diabetes accounts for 6.1% of deaths among the top 10 diseases. The global prevalence of hypothyroidism is 1–2%, and hyperthyroidism is 0.5–2%. However, in India, the prevalence of hypothyroidism is 11%, and subclinical hypothyroidism is 9.4%. Autoimmune hypothyroidism is related to diabetes type 1, and subclinical hypothyroidism is related to diabetes type 2. There was a need to investigate how the populations with thyroid dysfunction and diabetes can influence each other. To evaluate which one develops first and which factors influence to develop diabetes to thyroid dysfunction and thyroid disfunction to diabetes.

Materials and methods: The study was carried out in the research unit in Jawaharlal Nehru University Hospital, Medicine Department, Jaipur. The study included 771 participants of patients of any age suffering from diabetes or thyroid dysfunction. The questionnaires after consent were taken from patients.

Inclusion criteria: No limit on age-group; newly or follow-up cases of diabetic mellitus and thyroid disease.

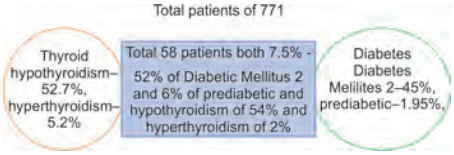
Exclusion criteria: Patients having acute illness that affect thyroid gland activity; patients having drugs that influence the thyroid hormone status; patients who have fever.

Used Excel software and Statistical Package for the Social Sciences (SPSS) to analyze of data in the form of average, maximum, minimum value, percentages and graphs, tables, correlation graphs, and p-values were seen.

Results: Among the patients of 771 found, 58 patients had both diabetes and thyroid dysfunction. These 58 taken as to focus to evaluate, which one is influenced to complicate from diabetes to hypothyroidism and vice versa. Analysis of both hypothyroidism and diabetes mellitus 2, revealed percentage 52% of diabetic mellitus 2 and 6% of prediabetic and hypothyroidism of 54%, and hyperthyroidism of 2%.

Those patients suffering from both diabetes and hypothyroidism was 58 (7.52% of total patients) in number, among diabetes mellitus (DM) type 1—0, DM type 2—52 (6.7%), and prediabetic—6 (0,77%), hyperthyroidism—2 (0.25%) and hypothyroidism—56 (7.26%).

When comparing the duration to start suffering from both thyroid and diabetic problems, it was found that hypothyroidism patients suffering first were five out of six prediabetic and hypothyroidism cases. Prediabetic and hypothyroidism occurred in the same duration in one case. When comparing the duration of a total of 55 cases of both DM2 and hypothyroidism, it was found that hypothyroidism occurred first in 17 cases, DM2 occurred first in 38 patients, and DM2 with hyperthyroidism occurred simultaneously in the same period.



Conclusion: Diabetic patients are more prone to develop prediabetes from hypothyroidism, and diabetes mellitus type 2 is more prone to develop hypothyroidism. Both hypothyroidism and diabetes mellitus type 2 have a high percentage of dyslipidemia. Therefore, there is a need for good control and management of both diabetes and hypothyroidism. It is advisable to establish a policy where each visit includes checking for glucose and TSH levels in patients suffering from diabetes or thyroid disease.

Correlation between Mean Platelet Volume and Hba1c Levels in Type 2 Diabetes Patients in a Tertiary Care Center

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Introduction: Diabetes significantly increases the risk of coronary heart disease, stroke, and peripheral arterial disease by two to four times, primarily due to heightened platelet activity. The elevated mean platelet volume (MPV), serving as an indirect indicator of platelet activation, highlights the potential cardiovascular complications in individuals with diabetes. This correlation underscores the crucial role of platelets in the genesis of cardiovascular issues associated with diabetes.

Aims and objectives:

1. Analyze MPV in individuals with type 2 diabetes mellitus (T2DM) and those without diabetes (nondiabetics).
2. Examine the correlation between MPV and hemoglobin A1C (HbA1C) levels in T2DM patients attending the outpatient department.

Materials and methods: Cross-sectional study at NMC Raichur from May 2022 to July 2023.

Included 100 type 2 diabetes participants, categorized into group I (HbA1C < 7.5%) and group II (HbA1C ≥ 7.5%), compared with a matched nondiabetic control group.

Observation and results: Study groups: Control (100 participants), group I (61 participants), and group II (39 participants), with a male predominance in all groups.

Significant differences were observed in HbA1C, fasting blood sugar (FBS), and MPV among groups, indicating statistical significance.

Group II showed higher HbA1C and FBS levels compared to the control group ($p < 0.0001$ and $p < 0.001$, respectively). Both groups 1 and 2 exhibited significantly elevated MPV values compared to the control group ($p < 0.0001$). Moderate positive correlation ($r = 0.52$) between HbA1C and MPV suggests an association between higher HbA1C levels and increased MPV.

Conclusion: Our study establishes a significant increase in MPV in diabetic individuals, highlighting its potential as a diabetes indicator. The direct correlation between MPV and HbA1C levels emphasizes the link between deteriorating blood sugar control and increased MPV. This underscores the practical utility of MPV as an accessible early assessment tool, particularly beneficial in resource-constrained healthcare settings. MPV's ability to offer timely insights into cardiovascular risk further supports its value in preventive healthcare measures.

To Study the Association between Glycemic Gap and Adverse Outcomes in Diabetic Patients Admitted to Intensive Care Unit

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Introduction: Stress-induced hyperglycemia has been independently associated with an increased risk of mortality in critically ill patients without diabetes. Glycemic gap is a marker of stress-induced glycemic excursion in patients with diabetes that can be used to predict adverse outcomes in patients with diabetes admitted to the intesive care unit (ICU). Objective of this study was to correlate glycemic gap and adverse outcomes in patients with type 2 diabetes mellitus admitted to the ICU.

Materials and methods: A 1-year longitudinal observational study in which type 2 diabetes mellitus patients admitted to medical ICU at the tertiary care center, fulfilling the inclusion criteria, from January to December 2021, were included in the study. Data including clinical and laboratory data with calculation of glycemic gap were collected and compared between improved and deteriorated group of patients, with study of adverse events in deteriorated group. Correlations between glycemic gap and outcome of patients were studied.

Observations: The study considered patients aged between 21 and 98 years. Descriptive analysis of the glycemic panel revealed the mean HbA1C of the study subjects as 9.11 ± 4.08%. The corresponding mean admission random blood sugar (RBS), A1C-derived average glucose (ADAG), and glycemic gap reported were 208.3 ± 70.03 mg/dL, 214.87 ± 116.97 mg/dL, and 4.28 ± 0.77 mg/dL. Analysis of glycemic panel parameters revealed a significant statistical difference in HbA1C, admission RBS, ADAG, and glycemic gap between the improved and worsened groups (0.09, <0.0001, 0.09, <.0001, respectively). The glycemic gap was found to be significantly more in the worsened group when compared to the improved group. Increased length of ICU stay, multiple organ dysfunction syndrome (MODS), and acute kidney injury (AKI) showed significant positive correlation with mortality rate. The study has noted MODS as the most common adverse event (14.84%), followed by AKI (11.72%), acute respiratory distress syndrome (ARDS) (10.16%), and shock (2.35%). A positive correlation was noted between the glycemic gap and worsened outcomes, whereas a negative correlation was noted between the glycemic gap and improved outcomes.

Conclusion: The present study showed that higher glycemic gap is a simple marker for predicting adverse outcomes in diabetes patients. The glycemic gap may serve as an effective tool to evaluate the severity and prognosis of patients with type 2 diabetes mellitus who have been admitted with critical illness. The present study findings could pave the way for further research in developing newer therapeutic approaches that control glycaemic gap levels of critically ill diabetic patients.

Correlation between Microalbuminuria and Retinopathy in Type 2 Diabetes Mellitus

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Introduction: Diabetes mellitus is one of the most common chronic disorders and the most common metabolic disease affecting man. Diabetic nephropathy is the leading cause of end-stage renal disease in the world, accounting for more than one-third of the cases. The earliest evidence of nephropathy is microalbuminuria. The correlation between microalbuminuria and diabetic retinopathy is closely related and can be useful in preventing or delaying the occurrence of diabetic retinopathy. Microalbuminuria is a marker of widespread microvascular damage in type 2 diabetes mellitus. The correlation between overt proteinuria and proliferative diabetic retinopathy have been demonstrated, and there is increasing evidence that microalbuminuria could be a marker of early diabetic retinopathy.

Materials and methods: The prospective study was conducted in the Medicine, Ophthalmology, and Pathology Department of a teaching hospital in Muzaffarnagar. Patients with diagnosis as well as new cases of type 2 diabetes mellitus who visited the institute were taken. The patients were taken from the outpatient department or inpatient department (IPD). Previously diagnosed as well as new cases of type 2 diabetes mellitus were taken.

Observations: Out of 100 cases, 56 cases were male, and 44 cases were female. Microalbuminuria was found in 39% of patients, and diabetic retinopathy was present in 45% of patients. Microalbuminuria and diabetic retinopathy were present in 32% of patients showing that there is correlation between microalbuminuria and diabetic retinopathy. Microalbuminuria and retinopathy was found more for the age-group above 50 years ($p = 0.001, 0.001$).

Conclusion: Our study confirmed that there is significant correlation between the presence of microalbuminuria and retinopathy. It has also shown that there is increase in the prevalence of microalbuminuria and retinopathy with increasing age, hemoglobin A1C (HbA1C) >7%, body mass index (BMI) = 25 kg/m^2.

The Association between Vitamin D Deficiency and Diabetic Retinopathy in Type 2 Diabetes

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Introduction: Diabetes mellitus is the most common noncommunicable disease in worldwide, more so in a developing country like India. Diabetic retinopathy is noteworthy complication of diabetes mellitus (DM) and a major cause of blindness worldwide. Vitamin D has antioxidant and antiangiogenesis properties, its deficiency increasing the chances of early retinal changes in diabetes patients in the form of nonproliferative diabetic retinopathy (NPDR), proliferative diabetic retinopathy (PDR), glaucoma, etc. Given these associations, we sought to determine the relationship between vitamin D deficiency and diabetic retinopathy.

Materials and methods: A total of 98 diabetic patients attending outpatient department (OPD) or admitted to the Department of Medicine, KLES Dr Prabhakar Kore Hospital, were assessed during September 2022 to November 2022. Patients were tested for hemoglobin A1c (HbA1c) levels and serum vitamin D and labeled insufficient for vitamin D when serum levels were <30 ng/mL. Detailed fundoscopic examination was done and classified into no background diabetic retinopathy (BDR), NPDR of mild, moderate, severe grade, and PDR.

Observations: All 98 diabetic patients included were vitamin D insufficient. A total of 39 patients with vitamin D insufficiency had no BDR, 38 patients were in mild-moderate NPDR group. A total of 15 patients were in severe NPDR and six patients had PDR. In patients with no BDR, the mean vitamin D levels were 27.91 ± 3.01 ng/mL. In mild-moderate and PDR, the vitamin D levels were 20.80 ± 6.75 and 15.52 ± 0.92 ng/mL, respectively. In severe NPDR, the vitamin D levels were in range of 12.05 ± 2.41 ng/mL; for PDR, the vitamin D levels were in the range of 11.17 ± 0.1.91 ng/mL.

Conclusion: This study suggests that diabetic subjects, especially those with NPDR and PDR, have lower vitamin D levels than those without diabetes.

Study on the Association of Monocyte–Lymphocyte Ratio in Proliferative Diabetic Retinopathy and Control of Diabetes

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Introduction: Diabetic retinopathy is a serious complication of diabetes mellitus, and it is considered a major cause of blindness in working population. Its pathogenesis is complicated, and it is related to many factors, but many groups have described the role of inflammatory markers in the development of diabetic retinopathy. The white blood cell (WBC) count, and its subtypes are classic indicators of inflammation. The monocyte–lymphocyte ratio (MLR) is a novel inflammatory marker that plays an important role in the prediction and prognosis of some inflammation-related diseases, such as cancer, cardiovascular diseases, and diabetic retinopathy (DR). Thus, this study is being conducted to explore the clinical and predictive significance of MLR in type 2 diabetes mellitus patients with proliferative diabetic retinopathy.

Materials and methods: This cross-sectional study was performed on 100 diabetic retinopathy patients admitted under the Department of General Medicine, Kempegowda Institute of Medical Sciences during an 18-month period. Fundoscopy was performed to assess if patients have diabetic retinopathy. Blood investigation such as complete blood count (CBC) and hemoglobin A1c (HbA1c) were done. The data was collected and compiled in Microsoft Excel. Descriptive statistics has been used to present the data. To analyse the data, Statistical Package for the Social Sciences (SPSS) (version 26.0) was used. Significance level was fixed as 5% ($\alpha = 0.05$). Qualitative variables are expressed as frequency and percentages and quantitative variables are expressed as mean and standard deviation. To compare the association between numerical and categorical variables, student *t*-test was used, and to compare the correlation between numerical variables, Pearson's correlation was used.

Observation: The mean age of the study participants was found to be 66.89 + 13.163. About 62% of the study participants were males, 80% of the study participants were found to have NPDR, and 20% were found to have PDR. The mean duration of diabetes was found to be 9.90 + 2.959, and the mean HbA1c was found to be 8.803 + 1.107. The mean MLR was found to be 0.176 + 0.0791. The mean MLR among PDR study participants was found to be lower than NPDR study participants (0.162 + 0.074 vs 0.179 + 0.080; p-value = 0.373). The correlation between MLR and HbA1c was found to be negative ($r = -0.071$; p-value = 0.484). The MLR value of 0.058 was found to be predictive of PDR with sensitivity of 95% and specificity of 98.8%. p-value not significant for duration of diabetes and MLR ratio.

Conclusion: Although the MLR may be pathophysiologically and clinically relevant in DR, its predictive ability is limited.

Retrospective Study on Fixed-Dose Combination of Dapagliflozin + Sitagliptin + Metformin in Patients with Type 2 Diabetes in a Primary Care Setting

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Introduction: Type 2 diabetes is a progressive disease in which the risks of microvascular and macrovascular complications and mortality are strongly associated with hyperglycemia. Achieving glycemic control remains the main goal of treatment to prevent these complications. Considering the progressive nature of the disease, many guidelines recommend use of dual or triple drug therapy based on glycated hemoglobin (HbA1c) level. Use of fixed-dose combination (FDC) improves therapy compliance and can provide optimum therapeutic benefits. Mechanisms of action of dipeptidyl peptidase 4 (DPP4) and sodium-glucose cotransporter 2 (SGLT2) inhibitors are complementary to that of metformin with low risk of hypoglycemia. Studies have shown beneficial effects of adding both DPP4 inhibitors and SGLT2 inhibitors after metformin monotherapy.

Materials and methods: In this retrospective study, we evaluated efficacy and safety of once-daily triple drug fixed-dose combination (FDC) dapagliflozin (DAPA) + sitagliptin (SITA) + metformin (MET) extended release (ER) in 11 patients with type 2 diabetes who are either poorly controlled or newly diagnosed at our clinic. Primary endpoint was mean change in HbA1c from baseline to week 16.

Observations: Mean baseline HbA1c was approximately 11.27% in this cohort. At week 16, mean reduction in HbA1c from baseline was 8.14%. About 27% patients were newly diagnosed and having HbA1c >12%. Overall reduction in HbA1c was more in newly diagnosed patients. All patients had hypertension as a comorbidity, with 81% of them being affected, and 72% had dyslipidemia. All patients tolerated without any reported side effects.

Conclusion: Triple FDC of DAPA + SITA + MET ER tablets once daily was significantly better in achieving glycemic control in poorly controlled and newly diagnosed type 2 diabetes patients both. The current study provides evidence for considering convenient triple FDC of DAPA + SITA + MET ER with minimal risk of hypoglycemia and weight gain.

Not All Diabetes are Type 1 or 2, Demystifying Di-Maturity-Onset Diabetes Of The Young-X: A Case Series

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Maturity-onset diabetes of the young (MODY) is a genetically, metabolically, and clinically heterogeneous type of monogenic noninsulin-dependent diabetes mellitus. It is characterized by early onset (usually before 25 years of age and often in adolescence or childhood), autosomal dominant inheritance, and a primary defect in glucose-stimulated insulin secretion. Here, we are discussing an interesting case of MODY-X, which was misdiagnosed and treated as type 1 diabetes mellitus. Classic criteria for a MODY diagnosis are often unable to identify all subjects, and traditional Sanger sequencing, using a candidate gene approach, leads to a high prevalence of missed genetic diagnosis, classified as MODY-X. Next-generation sequencing (NGS) panels provide a highly sensitive method even for rare forms; here, we have studied three generations from patient's family (herself, her son, and her father), we have done whole exome sequencing (WES) in the patient and sangers sequencing in other two, which showed the missense

mutations in MAFA and LIPC genes which are known for its role in the pancreatic beta cell functioning. We are presenting this case to emphasize evaluation of diabetes holistically, to emphasize the role of NGS panel (WES) in the diagnosis of uncommon forms of MODY (MODY-X), to explain the rarity of digenic inheritance in MODY-X, which is less documented in literature.

Change in Body Composition in Type 2 Diabetes Mellitus Patients on Antidiabetic Drugs

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Introduction: Antidiabetic drugs are known to affect body weight. Sulfonylureas and insulin are known to increase weight, whereas dipeptidyl peptidase-4 (DPP4) inhibitors are considered weight neutral. Literature is silent on the effect of these drugs on body fat, body water, and skeletal muscle mass. This study is an attempt to unveil the change in body composition profile in type 2 diabetes mellitus (T2DM) patients on antidiabetic drugs.

Aim: The aim of our study was to study the change in body composition in T2DM patients on antidiabetic drugs.

Materials and methods: Patients who were attending general medicine outpatient department (OPD) and endocrinology OPD of a tertiary care hospital with hemoglobin A1C (HbA1C) >7% were enrolled after fulfilling all inclusion and none of exclusion criteria. Body composition of T2DM patients on sulfonylureas and DPP4 inhibitors was determined *via* bioimpedance analysis at 0 weeks and 12 weeks.

Observations: A total of 35 patients were analyzed, of which 20 patients were started on DPP4 inhibitors and 15 were started on sulfonylureas. It was seen that patients on DPP4 inhibitors showed a decrease in weight from 67.4 + 11.5 kg to 66.2 + 13.5 kg at the end of 12 weeks with a *p*-value of 0.06. The absolute fat mass decreased from 21.29 + 7.3 kg on an average to 20.52 + 8.7 kg (*p*-value 0.11). Change in skeletal muscle mass was noted from 25.31 + 4.5 kg to 25.12 + 4.5 kg (*p*-value 0.32), while total body water decreased from 33.18 + 5.7 L to 32.91 + 5.8 L (*p*-value 0.26). Patients on sulfonylureas showed a decrease in weight from 70.64 + 16.6 kg to 69.96 + 16.9 kg with a *p*-value of 0.44. The absolute fat mass increased from 23.4 + 10.7 to 23.5 + 11.1 (*p*-value 0.9). Change in skeletal muscle mass was from 25.9 + 5.8 kg to 25.48 + 5.7 kg (*p*-value 0.26), while change in total body water was from 34.01 + 7.4 L to 33.48 + 7.4 L (*p*-value 0.26).

Conclusion: DPP4 inhibitors were found to decrease the total body weight. There was an observed overall decrease in total fat mass, skeletal muscle mass, and total body water. Sulfonylureas showed a decrease in total body weight as well, but total fat mass increased. There was a decrease in skeletal muscle mass and total body water as well. None of the observations were statistically significant.

A Study of Left Ventricular Diastolic Dysfunction in Type 2 Diabetes Mellitus and Correlation with HbA1c Levels in a Tertiary Care Center in Karwar, Karnataka, India

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Background: Diabetic cardiomyopathy is a rare complication of type 2 diabetes mellitus (T2DM) and can occur without any evidence of large vessel disease or abnormalities. It has an early stage characterized by left ventricular hypertrophy and an impaired diastolic function and a later stage that consists of cardiac fibrosis and systolic dysfunction. So, the present study was conducted to assess the prevalence of left ventricular diastolic dysfunction (LVDD) in type 2 diabetes patients and its correlation with hemoglobin A1c (HbA1c).

Methods: In this single-center cross-sectional study, we included 50 patients with type 2 diabetes mellitus with a minimum duration of 5 years in a tertiary hospital in the year 2022. All patients who fit the inclusion criteria during the predetermined study period were enrolled in the study after written informed consent. These patients were screened with routine investigations and HbA1c and Doppler echocardiography. The primary objective of the study was to assess the prevalence of LVDD in T2DM. The secondary objectives were to look for an association between higher HbA1c and the presence of LVDD.

Results: Between January 1 and December 31, 2022, a total of 50 patients with type 2 diabetes were included, and 28 (56%) were found to have LVDD. Of the 50 patients, 27 (96%) of the patients had HbA1c of >6.4% and diastolic dysfunction. Of these 27 patients, four of them were in the range of HbA1c 6.5–7.5%, 10 patients were in the range of 7.5–8.5%, and 13 patients had an HbA1c level above 8.5%.

Conclusion: The earliest manifestation of diabetic cardiomyopathy is LVDD, which is detected by echocardiography. Diastolic dysfunction does not show any differences between males and females. Most diabetics with normal left ventricular systolic function have diastolic dysfunction and, hence, can serve as an early marker of diabetic cardiomyopathy. It does not correlate with the duration of diabetes, but a strong correlation exists between the LVDD and HbA1c levels.

A Cross-Sectional Study on the Association Between Quality of Sleep and Glycemic Status Among Type 2 Diabetic Patients

Rohini R

Introduction: Despite many medication and lifestyle interventions, inadequacy in diabetes control has prompted researchers to investigate other factors that affect diabetes. Sleep disorders, which adversely affect diabetes control, are common in patients with diabetes. Poor diabetes control also leads to sleep disorders. Being one of the most fundamental physiological needs of human beings, sleep affects the quality of life, the course of diabetes, and complications of individuals with diabetes in many ways.

Materials and methods: It is a hospital-based cross-sectional study. A total of 200 type 2 diabetes patients visiting the Department of General Medicine of Victoria Hospital were included in the study. Patients eligible for the study were administered Pittsburgh Sleep Quality Index (PSQI) questionnaire. Details regarding sleep latency, duration of sleep, sleep efficiency, and insomnia were studied during the past month of hospital visit. It was correlated with glycemic control measure by fasting blood sugar (FBS), postprandial blood sugar (PPBS), and glycated hemoglobin (HBA1c).

Observations: Among the subjects, 33.33% were females, and 66.67% were males. The median HbA1C among poor sleepers was 11.0%. About 53.12% of the subjects had poor glycemic with HbA1C >8, and 85.89% of them had poor quality of sleep (PSQI >5). Among the subjects with poor glycemic control, 83.72% of them had poor sleep PSQI >5. There is a low positive correlation between poor sleep quality and glycemic control ($r = 0.28$). The results suggested that poor quality of sleep and short sleep were associated with higher HbA1C levels.

Conclusion: Our study suggested that sleep duration and other parameters associated with poor quality of sleep are significantly associated with poor glycemic control. Hence, sleep hygiene can be considered an important lifestyle intervention in glycemic control; however, further studies are warranted to establish the causal relationship between the two.

Estimation of Sarcopenic Obesity in Patients with Type 2 Diabetes Mellitus

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Introduction: Sarcopenic obesity is a term used to describe the coexistence of two conditions—sarcopenia and obesity. It refers to individuals who have both a loss of muscle mass and function (sarcopenia) as well as an excessive accumulation of body fat (obesity). Sarcopenic obesity along with low-grade inflammation, further intensifies insulin resistance, impairing glucose metabolism. Hence, this study aimed to study the proportion of patients with type 2 diabetes mellitus having sarcopenia and its correlation with body mass index (BMI).

Materials and methods: A cross-sectional observational study was conducted at the Department of Medicine of a tertiary care hospital. A total of 30 patients with type 2 diabetes mellitus were enrolled. The assessment of sarcopenia was done using bioimpedance analyzer, handgrip strength, and short physical performance battery (SPPB) score. The data was entered into Microsoft Excel and analysis was done. The qualitative data was expressed as proportion.

Results: Out of the total 30 patients, 21 were female, and 9 were male. Of these 30 patients, 18 were found to have sarcopenia, with 15 being obese and three nonobese. The proportion of obese females having sarcopenia was 64%, nonobese females having sarcopenia was 25%, obese males having sarcopenia was 60%, and nonobese males having sarcopenia was 25%.

The proportions of patients with duration of diabetes ≤1 year having sarcopenia were 19%, 1–5 years having sarcopenia was 58%, 5–10 years having sarcopenia was 75%, and ≥10 years having sarcopenia was 80%.

The proportion of patients having sarcopenia was relatively higher in the obese category as compared to the nonobese category. The proportion of patients having sarcopenia was increasing as the age and duration increased.

Conclusion: The above analysis shows that the proportion of patients with type 2 diabetes having sarcopenic obesity is relatively higher. Obesity may masquerade sarcopenia in diabetes. It is important to identify, evaluate, and retard the progression of sarcopenia.

Correlation of Body Mass Index with Atherogenic Index of Plasma in Type 2 Diabetes Mellitus

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Introduction: Diabetes mellitus causes chronic hyperglycemia due to insulin deficiency, leading to vital organ complications. People with type 2 diabetes mellitus (T2DM) often experience lipid abnormalities (diabetic dyslipidemia), including low high-density lipoprotein cholesterol (HDL-c), high triglycerides (TG), apolipoprotein B (Apo-B), and small low-density lipoprotein (S-LDL) predominance.

Atherogenic Index of Plasma (AIP), calculated as Log (serum triglyceride/serum HDL-c), is positively linked to diabetic microvascular complications in terms of occurrence and severity.

Material and methods: This is an observational cross-sectional study conducted in the Department of Medicine of a tertiary care hospital. It includes 50 T2DM patients, >18 years of age, both males and females.

Observation and results: A total of 18 (36%) males and 32 (64%) females were enrolled in this study.

Sample mean values: Body mass index (BMI) 27.23, AIP 0.53, total cholesterol 160.4 mg/dL, TG 148.10 mg/dL, LDL cholesterol 98.1 mg/dL, HDL-c 41.70 mg/dL

Pearson's correlation between BMI and (1) AIP ($r = 0.168$), (2) total cholesterol ($r = -0.150$), (3) triglycerides ($r = -0.019$), (4) LDL cholesterol ($r = -0.350$), and (5) HDL-c ($r = -0.196$).

Conclusion: Our findings suggest a positive correlation between BMI and AIP in T2DM patients, which may indicate increased atherogenic risk. Understanding these relationships is essential for personalized diabetes management and cardiovascular risk assessment. Further research is warranted to explore the clinical implications of these correlations and their impact on patient outcomes.

Case Series on Latent Autoimmune Diabetes in Adult Presenting in Tertiary Care Center: An Upcoming Type of Diabetes

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Introduction: Latent autoimmune diabetes in adults accounts for 2–12% of all cases of adult-onset diabetes. Latent autoimmune diabetes in adults (LADA) defined by immunology of diabetes society as adult age of onset >30 years of age and insulin independence for at least 6 months after diagnosis plus positivity for diabetes-associated antibodies. This report here presents four cases with heterogenous presentation, diagnosis, and treatment approach of patients found to have latent autoimmune diabetes in adult. Due to difficulty in diagnosis, slow evolution toward β-cell failure, and endotypic heterogenicity, it is important to have personalized approach to LADA.

Case 1: A 28-year-old nonobese male had uncontrolled sugars for 2 months on oral hypoglycemic agents (OHA) since past 4 months, had low C peptide levels, glutamic acid decarboxylase (GAD) antibodies negative. Sugar control was achieved on basal bolus insulin.

Case 2: A 52-year-old nonobese diabetic male since 8 years presented with complaints of polyuria. Patient was on OHA but since past 3 years has had recurrent admissions with uncontrolled sugars and diabetic ketoacidosis (DKA). Hemoglobin A1c (HbA1c) 10.9, GAD antibodies 19 IU/mL. Sugars were controlled by basal and bolus insulin.

Case 3: A 33-year-old nonobese diabetic male, diagnosed 5 years ago and on insulin therapy, presented with complaints of DKA. His HbA1c level was 15.1, C-peptide levels were 0.05 ng/mL, and GAD 65 was 73.222 IU/mL. He was started on insulin infusion, and later, fixed dose of basal and bolus insulin started.

Case 4: A 51-year-old nonobese male diabetic male since 12 years presented in DKA, C-peptide levels 0.93 ng/mL, HbA1c 10.3 controlled on basal bolus insulin.

Conclusion: In recent years, the incidence and prevalence of LADA have increased. Due to its heterogenicity, it is difficult to determine the duration required for complete insulin dependence. The goal of LADA treatment is early diagnosis, individualizing treatment for characteristics of each LADA patients aiming to both protect and stimulate β-cell regeneration, metabolic control using available medication, prevention of complications and need for development of new treatment methods.

Effects of Oral Zinc on Glycemic Status in Type 2 Diabetes Mellitus

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Introduction: Diabetes mellitus is a common metabolic disorder characterized by hyperglycemia resulting from impaired insulin secretion or action or both together. A growing body of evidence supports an association between hyperglycemia and zinc metabolism. Zinc is essential for the crystallization of insulin in hexameric complexes and is cosecreted with insulin on exposure to high glucose and

helps in the stabilization and synthesis of insulin hexamers and the pancreatic hormones hence improving glycemic control in diabetes mellitus.

Materials and methods: Newly diagnosed type 2 diabetes patients attending medicine OPD were subjected to fasting blood glucose (FBG), postprandial blood glucose (PPBG), hemoglobin A1c (HbA1C), and serum zinc levels after obtaining their consent to participate in study. After completing investigations 112 patients were divided randomly into two groups with each group consisting of 56 patients. Group I was given supplemental zinc and group II was given placebo.

Observations: In the study of 112 patients, serum zinc levels in most of the subjects in both groups were below 75 µg/dL before zinc supplementation. After zinc supplementation in newly detected type 2 diabetic patients, the fasting blood glucose levels got reduced by 24 mg/dL in comparison with placebo which reduced fasting blood sugar levels by 10.6 mg/dL. The HbA1c levels got reduced by 0.98% with zinc supplementation in comparison with placebo which reduced HbA1c levels by 0.27%. The reduction in HbA1c levels was meaningfully more in the zinc supplementation group compared to the placebo group.

Conclusion: Zinc supplementation improves glycemic parameters HbA1C, FBG, and PPBG in type 2 diabetics when compared to placebo group. Zinc supplementation with oral hypoglycemic agents may help to attain better glycemic control.

Effects of Dipeptidyl Peptidase-4 Inhibitors on Serum Adiponectin Levels in Patients with Newly Diagnosed Type 2 Diabetes Mellitus

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Introduction: Adiponectin is synthesized in adipocytes and secreted into the bloodstream, where it exhibits antidiabetic and antiatherosclerotic effects. Low circulating adiponectin concentrations impact on the pathogenesis of the metabolic syndrome and atherosclerosis. Patients with type 2 diabetes mellitus (T2DM) are shown to have lower levels of serum adiponectin levels. Rise in serum adiponectin levels after the pharmacotherapy indicates a good clinical course, better compliance, and less propensity for development of cardiovascular complications.

Objective and methodology: To asses serum adiponectin levels in patients receiving [metformin + dipeptidyl peptidase-4 inhibitors (DPP4i)] and (metformin+ sulfonylureas). This single-centered open-level randomized comparative study was conducted in 80 male and nonpregnant women with newly diagnosed T2DM patients [American Diabetes Association (ADA) 2017 criteria] of age 40–65 years. Serum adiponectin levels estimated by Raybio® human adiponectin enzyme-linked immunosorbent assay (ELISA) kit.

Results: The demographic data of all three groups were similar. There was a significant difference in the fasting sugar and postprandial sugar level in both study groups following institution of oral hypoglycemic agents. There was a significant increase in the mean serum adiponectin level among the two groups on 12th week following the glycemic control (metformin + DPP4 group,39 µg/mL to 45 µg/mL and metformin + sulfonylurea group 38.5 to 42 µg/mL). There was statistically significant increment in adiponectin level in group receiving DPP4i ($p < 0.01$). The mean hemoglobin A1C (HbA1C) reduction in both case groups was >1% and did not show any statistical difference.

Conclusion: The present study shows that while both DPP4i and sulfonylureas similarly reduce HbA1C in the subjects with T2DM ($p < 0.001$), the rise in serum adiponectin levels was higher in DPP4 group as compared to sulfonylurea group ($p < 0.01$). We conclude this finding as to open a vista to look for the pleotropic effect of oral hypoglycemic agent for future.

To Study the Platelet Indices as Predictor of Microvascular Complications in Type 2 Diabetes Mellitus

Gulfamahmmad Patel

Background: Large platelets are considered younger, more active, and more aggregable. They possess denser granules and secrete a higher amount of pro-aggregatory molecules. Platelet activation contributes to the pathology by triggering thrombus formation and causing microcapillary embolization with release of constrictive, oxidative, and mitogenic substances such as platelet-derived growth factor (PDGF) and vascular endothelial growth factor (VEGF) that accelerate progression of local vascular lesions like neovascularization as in diabetic retinopathies.

Microvascular complications of diabetes mellitus, retinal lesions, microalbuminuria, and proteinuria have been described as factors that are predictive of cardiovascular and cerebrovascular morbidity and mortality among diabetic patients. Hence, if detected, early microvascular complications would alert us regarding the risk of cardiovascular and cerebrovascular complications. Thus, microvascular complications were chosen to be studied in this study.

Platelet parameters have been available in the laboratory routinely using blood cell counters which include mean platelet volume (MPV), platelet distribution width (PDW), plateletcrit (PCT), and platelet-large cell ratio (P-LCR). The prothrombotic stage of platelet can be detected early with ease using the newer hematological analyzers through these platelet parameters.

Aims and objectives: To study the platelet indices among patients with type 2 diabetes mellitus.

To study the relation of platelet indices and progression of microvascular complications.

Methods: A total of 50 patients with type 2 diabetes mellitus who were admitted, who gave informed consent and who were fitting the inclusion and exclusion criteria during the study period at Dr BR Ambedkar Medical College and Hospital were taken up for the study. Data was collected orally with appropriate history taking and complete physical examination from investigations that were done.

Inclusion criteria: Patients with type 2 diabetes mellitus as per World Health Organization (WHO) criteria for diabetes.

Individuals already who were on treatment with oral hypoglycemic agents (OHA) or parenteral insulin.

Observation: Mean platelet volume (MPV) of 10.27 fL among the poor glycemic control group was more than the mean MPV of 8.58 fL among the good glycemic control group ($p < 0.001$).

The mean MPV of 10.24 fL among those with proteinuria was more than the mean MPV of 8.83 fL among those without proteinuria ($p = 0.001$). This was found to be statistically significant. The mean platelet volume (MPV) among those with retinopathy was 10.22 fL, which was higher than the mean MPV of 8.81 fL among those without retinopathy ($p < 0.001$).

The mean PDW of 12.86 fL among the poor glycemic control group was more than the mean PDW of 11.03 fL among the good glycemic control group ($p < 0.001$).

The mean PCT of 0.247% among the poor glycemic control group was more than the mean PCT of 0.233% among the good glycemic control group ($p < 0.001$).

The mean P-LCR of 41.10% among the poor glycemic control group was more than the mean P-LCR of 37.73% among the good glycemic control group ($p < 0.001$).

Conclusion: Diabetes mellitus is associated with increased oxidative stress, inflammation, and endothelial dysfunction, contributing directly to greater platelet reactivity. There was a statistically significant higher mean value of all the four platelet indices—MPV, PDW, PCT, and P-LCR among the subjects with poor glycemic control than those with good glycemic control.

Comparison of Lipid Accumulation Product and Body Mass Index as Indicators to Predict Risk of Diabetes

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Introduction: Increase in lipid is associated with insulin resistance, pancreatic exhaustion, and diabetes mellitus (DM). When available fuels exceed the adipose tissue's capacity for buffering and safe storage, lipids will be ectopically deposited in nonadipose tissues such as liver, skeletal muscle, and pancreatic cell. These ectopic lipid deposits lead to insulin resistance. Obesity is measured mainly with body mass index (BMI), but it does not measure central adiposity, whereas indices such as waist circumference (WC) are known to be better index for central adiposity. According to various studies, researchers have explored another index known as "lipid accumulation product" (LAP). LAP is based on a combination of WC and fasting triglyceride. LAP is known to be a good marker of lipid accumulation in ectopic sites which leads to insulin resistance and, hence, LAP can be a better marker to diagnose metabolic syndrome and associated morbidities like type 2 DM.

Materials and methods: The study was conducted on 60 individuals aged between 25 and 50 years. The subjects with a history of DM, endocrinal disorders, smoking, hypertension, cardiac diseases, and all known parameters that may affect lipid profile were excluded. The LAP, which includes WC and fasting concentration of triglycerides, was calculated along with the BMI. The correlation of LAP with fasting blood sugar (FBS) and BMI with FBS was calculated.

Results: Receiver operating characteristic (ROC) analysis was done between LAP and BMI with respect to fasting blood sugar. According to the data LAP results were found to be better than BMI results with an area under the curve (AUC) value of 0.928 (LAP) & 0.899 (BMI).

Conclusion: According to our study, LAP is a better marker than BMI in detecting healthy subjects at risk of developing DM in an early stage. LAP is a cost-effective and easily measurable obesity index that can be utilized by clinicians as a tool to predict the risk of future DM.

Endocrinology

Hypothyroidism-Associated Difference in Pulmonary Function Before and After Regaining Euthyroid State

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Introduction: India has an 11% prevalence of hypothyroidism. All of the body's organ systems are impacted by it. A decline in cardiac reserve, pulmonary reserve, muscle strength, or muscle exhaustion could be the source of these symptoms.

Aims and objectives: To find the correlation between thyroid status and pulmonary function; to study clinical and investigative profile of hypothyroid patients; to ascertain whether there is any relationship between thyroid function and pulmonary function in the research population before and after the restoration of euthyroid condition.

Materials and methods: A chest X-ray, thyroid profile, and spirometry were performed on 100 hypothyroidism cases as part of the study. Peak expiratory flow rate (PEFR), forced expiratory flow (FEF)—(25–75%), forced vital capacity (FVC), forced expiratory volume in 1 second (FEV1), and forced vital capacity (FVC). Levothyroxine treatment is administered to all hypothyroidism patients.

Observations: Among 100 individuals with hypothyroidism (59 female and 41 male), with a mean duration of diabetes of 46.21 + 34.31 months.

At first, 26 patients had severe restrictive pulmonary abnormalities, 34 patients had mild restrictive pulmonary abnormalities, and 30 patients had moderate restrictive respiratory disorders. There were 10 normal patients. In the end, mild restrictive abnormalities were found in 29 patients, moderate restrictive abnormalities in 28, and severe restrictive abnormalities in 24% of patients. Spirometry values were normal in 19 patients.

After taking levothyroxine, the study discovered a significantly higher FEV1, FVC, and FEF25–75% ($p = 0.05$).

T3 levels in the restrictive pattern group ranged from 0.4 to 0.5 ng/mL in 40% of cases, 0.3 to 0.4 ng/mL in 36.7%, and 0.3 to 0.2 ng/mL in 23.3% of cases. The T4 range for the restrictive pattern population was 3.0–5.0 gm/dL in 41.1% of cases, 3.0–3.0 gm/dL in 31.1%, and 1.0 gm/dL in 27.8% of cases. In the population with a restrictive pattern, the TSH levels ranged from 3.0 to 7.0 IU/mL in 42.2% of cases, 7.0 to 10 IU/mL in 32.2%, and <10 IU/mL in 25.6% of cases. These all exhibit a meaningful difference from one another ($p = 0.05$).

When compared to participants with a normal respiratory pattern, the mean TSH, T3, and T4 levels were greater in subjects with a restrictive pattern, with a very significant difference between the two (10.1421 + 6.527 IU/mL, 0.3522 + 0.0947 ng/mL, and 2.41611.474 gm/dL vs 4.62 + 0.68 IU/mL, 0.4790 + 0.017 ng/mL, and 4.233].

Forced vital capacity % (FVC%), FEV1%, FEV1/FVC (%), FEF25–75%, and PEFR% were substantially higher after therapy compared to baseline (73.5, 70.3, 97.73, 62.06, and 81.93 vs 71.39, 68.39, 96.29, 81.31, and 61.8). The mean differences in the variables FVC%, FEV1%, FEV1/FVC (%), FEF25–75%, and PEFR% before and after hypothyroid treatment were 2.11, 1.9, 1.43, 0.3, and 0.63, respectively, with significant difference p-values of 0.001, 0.001, 0.006, and 0.045.

When compared to the baseline, the mean T4 level increased following therapy and the mean TSH level reduced (T4 = 3.131.44 vs 2.591.51 and 7.254.73 vs 9.59 + 6.41, 0.001).

The study found a significant correlation between T3 and FVC% ($r = 0.685$, $p = 0.0001$), T3 and FEV1% ($r = 0.230$, $p = 0.021$), T3 and FEV1/FVC% ($r = -0.726$, $p = 0.0001$), T3 and PEFR ($r = 0.352$, $p = 0.0001$), and a significant correlation between T3 and FEF25–75% ($r = 0.299$, $p = 0.002$).

Our study observed significant correlation between serum T4 and FVC% ($r = 0.673$, $p < 0.0001$), nonsignificant correlation between serum T4 and FEV1% ($r = 0.094$, $p = 0.351$), significant correlation between T4 and FEV1/FVC% ($r = -0.773$, $p < 0.0001$), significant correlation between serum T4 and PEFR ($r = 0.227$, $p = 0.023$), and significant correlation between serum T4 and FEF25–75% ($r = 0.217$, $p = 0.03$). The study found a significant correlation between serum TSH and FVC% ($r = -0.627$, $p = 0.0001$), a nonsignificant correlation between serum TSH and FEV1% ($r = -0.011$, $p = 0.911$), a significant correlation between serum TSH and FEV1/FVC%, a significant correlation between TSH and PEFR, a significant correlation between TSH and FEF25–75%, and a significant correlation between TSH and FEF25–75%.

The duration of thyroid issues correlates significantly with FVC% ($r=-0.282, p=0.004$), significantly with FEV1% ($r=-0.253, p=0.01$), significantly with FEV1/FVC% ($r=0.177, p=0.079$), significantly with PEFR ($r=-0.296, p=0.003$), significantly with PEFR ($r=-0.302$, $p=0.002$), significantly with serum TSH ($r=-0.288$, $p=0.00$).

Conclusion: FEV1, FVC, and FEF25–75% all significantly increased after levothyroxine treatment. FEV1, FVC, and FEF25–75% all showed a substantial improvement after receiving levothyroxine medication ($p=0.05$). Due to weakened respiratory muscles, hypothyroidism can impair the respiratory system.

The study found that hypothyroid patients had higher FEV1/FVC and a restrictive trend. The study advises early intervention in hypothyroidism cases with strict monitoring of pulmonary function and exercise tolerance because hypothyroidism has a considerable impact on both resting PFTs and exercise testing parameters, even in its early stages.

Steroid-Responsive Encephalopathy-Associated with Autoimmune Thyroiditis

Kanimozhi K

Hashimoto's encephalopathy is a syndrome characterized by altered mental status, confusion, hallucinations, delusions, and seizures and associated with high serum antithyroid peroxidase antibodies (anti-TPO-Ab) concentration that is usually responsive to glucocorticoid therapy. Diagnosis requires exclusion of other identifiable causes of encephalopathy.

First description of steroid-responsive encephalopathy associated with autoimmune thyroiditis (SREAT) was in 1996, with an estimated prevalence of 2.1/1 lakh population with female preponderance.

Case description: A 36-year-old female was brought to the hospital with the complaints of irrelevant speech, behavior, bladder, bowel disturbances and lack of sleep for 8 days with no history of fever/seizure/trauma/loss of consciousness/recent disputes with no history of previous similar episodes and she was known case of hypothyroidism on treatment with no significant family or personal or menstrual history. On examination, patient was awake, spontaneous eye-opening present, did not respond to verbal commands, visual, auditory, or tactile hallucinations, or grinding of teeth present. Mini–mental state examination (MMSE) <9, tone increased in all four limbs, reflexes were brisk, and catalepsy (waxy flexibility) was present. Routine investigations, cerebrospinal fluid (CSF) analysis, viral markers, magnetic resonance imaging (MRI) brain, and thyroid function test (TFT) were normal, and anti-TPO levels >1000 IU/mL.

Pathogenesis remains unclear, but most accepted theories are autoimmune general cerebral vasculitis and disseminated encephalomyelitis. Elevated anti-TPO-Ab, thyroglobulin antibodies (TGAb) or thyrotropin receptor antibodies, amino terminal of alpha-enolase (NAE). The most common clinical signs include seizure resistant to anticonvulsant, confusion, headache, hallucinations, stroke-like episodes, coma, cognitive impairment, behavior and mood disturbance, focal neurological deficit, ataxia, and dementia. CSF, electroencephalogram (EEG), MRI, single-photon emission computed tomography (SPECT), and neurophysiological examinations are used as diagnostic tools. Once the diagnosis is made, corticosteroid treatment usually provides a dramatic recovery.

Steroid-responsive encephalopathy associated with autoimmune thyroiditis (SREAT) is rare but very serious illness, and the incidence is probably underestimated because of the low overall awareness about the disease. SREAT may be found in cases of unexplained encephalopathy, particularly together with the presence of high thyroid antibody levels (anti-TPO). Due to autoimmune origin of disease, corticosteroid treatment usually provides a good recovery among patients.

Comparative Study of Atherogenic Index of Plasma in Women with and Without Subclinical Hypothyroidism

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Introduction: Subclinical hypothyroidism (SH) is defined as an increase in serum-thyroid stimulating hormone (S-TSH) above the normal level with free triiodothyronine (T3) and free thyroxine (T4) within the normal range. It is more common in females. The association between SH and dyslipidemia is unclear. Our aim is to study the Atherogenic Index of Plasma (AIP) in SH patients.

Atherogenic Index of Plasma (AIP) is a new index. It is a logarithmic ratio of TGs and high-density lipoprotein cholesterol (HDL-C). It is a marker of dyslipidemia and diseases associated with it, such as cardiovascular disease and cerebrovascular disease. Many studies have shown that AIP predicts cardiovascular risk. Values of AIP <0.1 are considered low risk, 0.1–0.2 is intermediate risk, and >0.2 is at high risk for cardiovascular diseases.

Materials and methods: It is a prospective study conducted in the Department of General Medicine, Kalinga Institute of Medical Sciences (KIMS), Bhubaneswar, Odisha, India, for 1 year from February 2022 to March 2023. A total of 31 females with SH are taken as cases, and 30 females are taken as euthyroid (ET) controls. They are matched for demographic characteristics. T3, T4, S-TSH, total cholesterol, S-triglycerides (S-TG), HDL-C, low-density lipoprotein cholesterol (LDL-C), and AIP are compared between the two groups. Comparison will be done using analysis of variance (ANOVA).

Results: Triglycerides (TG) and AIP were higher in the SH group compared to the ET group (p-value of TG = 0.000, p-value of AIP <0.001). AIP showed a significant positive correlation with S-TSH levels in the SH group.

Conclusion: It is important to regularly monitor SH patients for dyslipidemia, in order to start early therapy with levothyroxine/statins. Emphasis should be laid on lifestyle changes such as diet and exercise from the time of diagnosis. Community-level education and awareness should be encouraged. Also, AIP is a better parameter to assess cardiovascular risk in SH patients than a conventional lipid profile.

A Case of Autoimmune Polyglandular Syndrome Type 1 with Acute Adrenal Insufficiency and Multi-Organ Involvement

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Introduction: Autoimmune polyglandular syndrome type 1 (APS1) is a rare autoimmune disorder affecting multiple endocrine glands. The APS1 gene refers to the autoimmune regulator gene, also known as autoimmune regulator (AIRE). It is located on chromosome 21q22.3 and is responsible for encoding the AIRE protein. Production of a dysfunctional AIRE protein causes an autoimmune attack, which leads to the destruction of the affected glands, causing hormonal imbalances and dysfunction of multiple endocrine organs.

Materials and methods: 18-year-old male patient with presenting symptoms—shortness of breath, abdominal pain, backache.

Critical condition: Hypotension, metabolic acidosis, hypoglycemia, electrolyte abnormalities like hyponatremia and hyperkalemia

Laboratory findings: Low cortisol, elevated ACTH, decreased aldosterone, hyperpigmentation, hormonal deficiencies in testosterone and parathyroid hormone.

Observation: The patient was diagnosed to be a case of adrenal insufficiency and later confirmed as APS1 based on lab and clinical findings. He exhibited multi-organ involvement, including adrenal insufficiency, hyperpigmentation, and hormonal deficiencies in testosterone and parathyroid hormone. Early recognition and administration of hydrocortisone and tailored hormone replacement therapy played a critical role in improving the patient's condition and enhancing the quality of life.

Conclusion: This case emphasizes the challenges in diagnosing and managing APS1 with multi-organ involvement. Early recognition of adrenal insufficiency is crucial, and comprehensive endocrine evaluation is necessary to guide tailored hormone replacement therapy. Increased awareness and prompt intervention can lead to improved outcomes and enhance the quality of life for individuals with APS1.

Hypercalcemia with Hypertension: An Uncommon Cause

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Introduction: Severe hypercalcemia is rare in clinical practice and results from various conditions like hyperparathyroidism, malignancies, or paraneoplastic syndromes. Only 1% of hypercalcemia is due to sarcoidosis. Hypercalcemia is seen as the presenting symptom in only 3% cases, while angiotensin-converting enzyme (ACE) is elevated in 75% cases.

Hypercalcemia in sarcoidosis is due to the uncontrolled synthesis of 1,25-dihydroxyvitamin D3 by macrophages in the granulomatous foci of sarcoidosis, which leads to an increased absorption of calcium in the intestine and to an increased resorption of calcium in the bone. Treatment with glucocorticosteroids acts by inhibiting the excessive 1 α-hydroxylase activity of macrophages. Sarcoidosis is a systemic inflammatory condition that can vary in its clinical presentation and severity. Therapeutic management depends on patient's specific disease manifestation and response to the therapy.

A 45-year-old female presented to our center with complaints of recurrent pain abdomen, fatigue, severe loss of appetite—progressive over 4 months, weight loss + 5–6 kg from past 4–5 months with a past history of accelerated hypertension 2 months back with elevated catecholamines controlled on five antihypertensive drugs, acute pancreatitis 1 month back: likely gall stone induced and diabetes. The suspected differentials were multiple endocrine neoplasia (MEN) syndrome and malignancy. Hypertension pointing to pheochromocytoma and sarcoplasmic reticulum (SR) calcium levels decreasing from 13.9 to 13.1, along with hypercalcemia, suggesting likely hyperparathyroidism, fits clearly into the multiple endocrine neoplasia type 2 (MEN 2) syndrome. Positron emission tomography-computed tomography (PET-CT) showed increased uptake in the liver, cholelithiasis, necrotizing pancreatitis, mediastinal lymphadenopathy (LAP) bilateral hilar 1.5 × 1.5 cm, infrarenal lymph node (LN) nonavid, and mesenteric nodules. These findings necessitated consideration of differentials, including tuberculosis (TB), lymphoma, and sarcoid. Lymph node biopsy showed well-formed epithelioid granulomas in the mediastinal lymph node, and liver biopsy showed well-formed epithelioid granulomas in the liver. Parenchyma is accompanied by multinucleated histiocytic giant cells within the expanded fibrotic and hyalinized areas. No necrosis was identified. Acid-fast bacilli (AFB) was negative. ACE levels were >120. All her conditions including accelerated hypertension and hypercalcemia could be explained with the diagnosis of sarcoidosis.

She was managed with IV steroids, IV diuretics, insulin, and antihypertensive medications. She was continued on steroids, reduced insulin to once daily due to hypoglycemia, and was stopped over 4 weeks and was maintained only on metformin. Reduced blood pressure (BP) medications from five to two and then one and stopped over 3 weeks. She was stable without BP meds and continued on methotrexate and metformin. This case highlights the need for proper evaluation in cases with serum calcium abnormalities associated with hypertension, whereas it is often overlooked.

Sleep Quality as a Predictor of Sexual Dysfunction in Type 2 Diabetes Males

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Introduction: Clinical insomnia is associated with a multitude of health issues, including decreased daytime alertness, elevated body mass index (BMI), hypertension, depression, and sexual dysfunction. This study investigates the interplay between sleep quality, hypogonadal symptoms, and sexual dysfunction in males with type 2 diabetes.

Methods: We conducted a comprehensive assessment of sleep quality and hypogonadal symptoms using the Androgen Deficiency in the Aging Male (ADAM) questionnaire and the Insomnia Severity Index (ISI) among type 2 diabetes males attending the medicine and endocrinology outpatient department from February 2023 to April 2023.

Results: Our study included 30 type 2 diabetes males, and multivariate regression analysis unveiled significant linear associations between sleep quality and ADAM scores. The group with a positive ADAM score exhibited a mean ISI score of 18.500 ± 2.759, while the negative ADAM score group had a mean ISI score of 13.200 ± 1.881 ($p < 0.001$). Moreover, individuals with clinical insomnia (ISI > 15) displayed a higher mean hemoglobin A1c (HbA1c) value (9.040 ± 1.887) compared to those with an ISI score of <15 (8.300 ± 0.521, $p = 0.109$). Additionally, the duration of diabetes was longer in the clinical insomnia group (10.400 ± 4.169 years) compared to the group with an ISI score of <15 (5.900 ± 2.469 years, $p = 0.001$). Furthermore, those with clinical insomnia had a higher mean BMI (29.025 ± 2.218) compared to the group with an ISI score of <15 (25.715 ± 1.055, $p < 0.001$).

Conclusion: Our findings suggest that poor sleep quality in males with type 2 diabetes is associated with an increased risk of hypogonadal symptoms, sexual dysfunction, and suboptimal diabetes control, often compounded by obesity. Addressing sleep quality may offer a promising avenue for improving these interconnected health issues.

An Enigma of Etiology of Hypocalcemia

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Introduction: Hypocalcemia is a common biochemical abnormality that can range in severity from being asymptomatic in mild cases to presenting as an acute life-threatening crisis. Hypocalcemia is most commonly a consequence of vitamin D inadequacy or hypoparathyroidism or a resistance to these hormones.

Case description: Here, we are reporting a 47-year-old woman, a known case of hypothyroidism for 1 year, on tab. Thyronorm 25 µg, and with a history of undergoing decompressive laminectomy for cervical myelopathy 1 year back. She was admitted with a fracture of the shaft of the femur of the right leg sustained during her routine physiotherapy session. She presented with a history of facial numbness, spasms and twitching of both hands and legs

and stiffness and pain in the back and hips causing restricted movements.

On physical examination, patient displayed a kyphotic and lordotic curve of the back, flexion deformity of both knee joints, Chvostek sign was positive, Trousseau sign was positive.

Blood investigations showed severe hypocalcemia, hyperphosphatemia, and low ionized calcium levels. Further investigations revealed undetectable levels of serum parathyroid hormone levels, low serum vitamin D levels, and elevated antithyroid peroxidase (anti-TPO) antibodies. Tests for antinuclear antibodies and rheumatoid factor were negative.

Hypertrophic calcification was seen in the hip joint on the side of the fracture of anteroposterior (AP) X-ray of pelvis. Lateral X-ray of cervical spine showed bone fusion and ossification of anterior longitudinal ligament. AP X-ray showed calcification of ligaments and syndesmophytes in the thoracolumbar spine.

Patient was treated with calcium gluconate correction and continued till normal serum calcium levels were achieved and later started on oral calcium supplements thrice a day. Magnesium correction was given for 1 day and was also started on vitamin D3 supplements. Patient's condition improved clinically and was discharged with vitamin D3 supplements, and oral calcium supplements. Gradual improvement of limb spasticity was observed.

Conclusion: Although vitamin D deficiency is common and known to cause fractures, coexistence of primary idiopathic hypoparathyroidism and vitamin D deficiency is very rare and together can lead to severe hypocalcemia and sometimes life-threatening complications. Management requires identification of the cause of hypocalcemia followed by aggressive treatment and close monitoring of the patient.

Assessment of Thyroid Profile in Critically Ill Patients by Using Sequential Organ Failure Assessment Score In a Tertiary Care Hospital

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Introduction: Sequential organ failure assessment (SOFA) score, previously known as sepsis-related organ failure assessment, was used to track health status and extent of organ failure of intensive care unit (ICU) patients. Previously, acute physiology and chronic health evaluation II (APACHE II) score and sepsis-related organ failure assessment (SOFAS) score have been used to predict hospital-associated mortality in critically ill ICU patients. It has been noted in many studies that there are hormonal imbalances in critically ill patients. Peculiar changes have been observed in thyroid hormones that have been named sick euthyroid syndrome or nonthyroidal illness syndrome (NTIS). We have undertaken this study to clarify whether thyroid profile can independently predict mortality and disease severity in ICU patients and whether there is any correlation between the thyroid profile and SOFAS scores.

Methods: This was a cross-sectional study conducted on 152 critically ill sepsis patients over a period of 2 months from February 2022 to March 2022. The study protocol was approved by the Institutional Ethics Committee. All patients fulfilling inclusion criteria and exclusion criteria were taken up for the study, and written informed consent was taken from all study subjects.

Results: There were 85 (55.92%) survivors and 67 (44.08%) nonsurvivors in the study. Mean age of the survivors was 58.33 + 12.56 years vs 62.46 + 14.22 years among nonsurvivors. Mean FT3 level was significantly more reduced among nonsurvivors (1.5 ± 0.77 pmol/L) than the survivors (2.02 ± 0.66 pmol/L). Mean FT4 level, though decreased, did not differ between the two groups. While mean TSH level was significantly raised among nonsurvivors (5.23 ± 0.96 µIU/L) than the survivors (4.92 ± 0.96 µIU/L). Serum FT3 levels in both groups were negatively correlated with disease severity, that is, duration of mechanical ventilation, duration of ICU stay, and with SOFA scores.

Conclusion: FT3 can be used as a proxy indicator of SOFA scores for assessing disease severity and predicting prognosis of critically ill patients in ICU.

A Study of Thyroid Function in Chronic Liver Disease

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Introduction: Thyroid hormones regulate basal metabolic rate of all cells including hepatocytes and thereby modulate hepatic function. Liver plays important role in thyroid hormones metabolism being involved in their conjugation, peripheral deiodination and in synthesis of thyroid binding globulin. The present study aims at evaluating thyroid function in patients with chronic liver disease and assessing severity of liver dysfunction in relation to interpretation of thyroid function.

Materials and methods: The present study was conducted at the General Medicine Department, King George Hospital, Visakhapatnam, Andhra Pradesh from December 2022 to August 2023. This case-control study included 40 patients aged 25–75 years with symptoms, signs, biochemical and radiological evidence of chronic liver disease, and 40 healthy controls. Complete history was taken and detailed physical examination was done. Investigations including complete blood picture, renal and liver function tests, thyroid profile, and ultrasound abdomen were done and statistical analysis was performed.

Observations: About 42% patients with chronic liver disease showed significantly reduced serum T3. About 10% patients had low normal levels of FT3. About 12.5% patients had low T4 values. All patients had normal FT4 and thyroid-stimulating hormone (TSH) values. Simple correlation analysis showed that serum T3 concentration significantly correlated with serum bilirubin, albumin, and prothrombin time in chronic liver disease but not with transaminases.

Conclusion: The present study confirms existence of several abnormalities in thyroid profile in chronic liver disease, although showing euthyroidism being maintained virtually in all patients, probably as a result of low normal FT3 and high normal FT4. Furthermore, serum T3 concentration appears to correlate with severity of liver dysfunction.

Pseudohypoparathyroidism Presenting as Seizure

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Introduction: Hypoparathyroidism occurs due to insufficient production of parathyroid hormone to maintain extracellular calcium levels within the normal range. The acute clinical symptoms and signs of hypoparathyroidism are those of hypocalcemia, ranging from tingling to numbness of limb extremities to intractable seizures. Often seizures are mistaken for epilepsy. Though hypoparathyroidism is not uncommon, the diagnosis is often missed due to its unusual clinical manifestation.

Case description: We present a case of a 15-year-old boy who presented with fever for 4 days, multiple episodes of convulsions within the past 1 hour, and retention of urine. On laboratory profiling, he was found to have low calcium, high phosphorus, high parathyroid hormone (PTH), prolonged QT interval, positive Chvostek sign, exaggerated deep tendon reflexes (DTR), and magnetic resonance imaging (MRI) suggestive of perinatal ischemic insult. The patient symptomatically improved after intravenous calcium gluconate infusion.

Discussion: This is a rare case of pseudohypoparathyroidism presenting as a seizure disorder. Due to mineral changes, it produces effects on bones, altered mentation, seizures, and arrhythmias. Pseudohypoparathyroidism can also affect other hormones.

Conclusion: Every patient with hypocalcemia should be thoroughly investigated for the cause. Pseudohypoparathyroidism can present with unusual manifestations in adulthood, such as hypocalcemia-related seizures. The cause of hypocalcemia should be thoroughly investigated.

Thyroid Troubles and Muscle Meltdown: The Enigma of Rhabdomyolysis in Hypothyroidism—A Case Report

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Hypothyroidism presents with a broad spectrum of clinical features, and the involvement of muscles in various forms is frequently found. Muscular symptoms range from stiffness, weakness, myalgia, cramps, pseudohypertrophy to rhabdomyolysis. Rhabdomyolysis is a syndrome characterized by muscle necrosis and the release of intracellular muscle constituents into the circulation. The causes of rhabdomyolysis can be traumatic or nontraumatic. Nontraumatic causes include heat exhaustion, electrolyte imbalance, seizures, endocrine disorders, infections, and heavy exercise. However, hypothyroidism causing rhabdomyolysis is an infrequent clinical entity.

Very few cases of hypothyroidism causing rhabdomyolysis have been reported in the literature. In our patient, rhabdomyolysis was diagnosed without any apparent cause in the initial evaluation. We could not find a definite cause for rhabdomyolysis, hence, hypothyroidism was considered an underlying etiology, which was confirmed by laboratory investigations. A review of the literature on 10 reported cases of hypothyroidism causing rhabdomyolysis revealed that only four cases had preexisting hypothyroidism when they presented with rhabdomyolysis. In the remaining six cases, hypothyroidism was diagnosed concurrently with rhabdomyolysis.

When Bones and Hormones Collide–A Comprehensive Look at Pseudohypoparathyroidism Type 1a/1c

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Introduction: Pseudohypoparathyroidism (PHP) type 1a/1c arises from GNAS gene mutations on chromosome 20. These mutations impact the parathyroid hormone (PTH) response, causing a calcium-phosphate imbalance that results in hypocalcemia, hyperphosphatemia, and unique skeletal deformities.

Case description: A 15-year-old male with intellectual disability, spastic cerebral palsy, and seizures, currently on syrup sodium valproate, presented to the medicine outpatient department (OPD) with intermittent spasms in both upper limbs for the past 5 days. The spasms were triggered by stress and activity, and the patient had a history of past hospitalization-requiring episodes.

In the general examination, bilateral short 4th metacarpals (positive Archibald sign), short 2nd to 5th toes, bilateral cataracts, and a positive Chvostek's sign were observed.

The neurological exam showed spasticity in both lower limbs and a bilateral Babinski sign.

Lab results indicated low calcium (5.6 mg/dL), high phosphate (6.9 mg/dL), high magnesium (1.93 mg/dL), low vitamin D3 (11.68 ng/mL), high PTH (991 pg/mL), and elevated thyroid-stimulating hormone (TSH) (14.99 µIU/mL). The computed tomography (CT) scan indicated calcifications in the cerebellar vermis (CG region) and pons.

Discussion: Diagnosis—pseudohypoparathyroidism type 1a/1c, supported by lab findings of hypocalcemia, hyperphosphatemia, elevated PTH levels indicating PTH resistance, and presence of Albright's hereditary osteodystrophy (AHO) features along with associated hypothyroidism.

Treatment: Calcium, phosphorus chelation, thyroxine.

Conclusion: This case highlights PHP 1a/1c diagnosis and management through clinical and lab parameters, addressing patient's endocrine and skeletal anomalies.

Nonalcoholic Fatty Liver Disease in Patients with Clinical and Subclinical Hypothyroidism

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Introduction: In recent years, the correlation between overt or subclinical hypothyroidism and nonalcoholic fatty liver disease (NAFLD) has been discussed and is considered controversial. Therefore, the present study aims to determine the relationship of NAFLD with thyroid function parameters and hypothyroidism.

Materials and methods: The study group shall include consecutive hypothyroid patients (clinical and subclinical) presenting to the outpatient department (OPD) in the Department of Medicine of Lady Hardinge Medical College (LHMC) and associated hospitals. The sample size for the study attained until now is 74. NAFLD will be diagnosed across the spectrum using ultrasound for fatty liver, elevated liver enzymes for steatohepatitis, and fibrosis using transient elastography (FibroScan).

Results: The proportion of NAFLD in hypothyroid patients detected was 45.9% (34 out of 74 patients). Out of 74 patients, 31.08% had fatty liver alone (23 out of 74), 1.35% of patients had steatohepatitis (1 out of 74), and 13.51% of patients had fibrosis (10 out of 74).

Conclusion: Nonalcoholic fatty liver disease (NAFLD) is far more prevalent in hypothyroid patients than in the normal population. Early identification of at-risk patients is important since treatment of hypothyroidism may reduce the risk of NAFLD and potential complications.

Fasting vs Postprandial Thyroid Profile Variation in Patients Presenting with Hypothyroid Features in Overweight Females

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Introduction: Guidelines recommend a fasting thyroid profile in suspected thyroid disorder patients. The diagnostic cutoffs are stringent, and, when needed, symptoms and/or antibodies determine the treatment.

The dilemma arises when the patient comes to the outpatient department for a thyroid test or repeat testing. We are usually posed with the question from the patients whether the test should be done in fasting or if a postprandial sample is good enough.

Aims and objectives: To test for variations in thyroid stimulating hormone (TSH) values between fasting and

postprandial values in overweight females and assess the significance of these variations.

Methodology: Blood samples were collected for TSH from 50 overweight females with features suggestive of hypothyroidism. The first sample was taken at 8 AM with the patient in a fasting state, and the second sample was collected at 10 AM, that is, 2 hours postprandial state (2 hr PP). Values were compared to determine the effects of the meal.

Inclusion criteria: Females aged 20 years and older, classified as overweight [body mass index (BMI): 23–24.9 kg/m^2], exhibiting symptoms and signs suggestive of hypothyroidism.

Exclusion criteria: Age <20, known cases of hypothyroidism/hyperthyroidism, history of thyroid gland surgery, pregnant females, individuals on steroid medication, females with BMI <23 kg/m^2 or BMI greater than 24.9 kg/m^2.

Results: The fasting levels of TSH in the tested population were [mean ± standard deviation (SD)]: 3.992 ± 1.438 uIU/mL. The 2 hr PP levels of TSH in the tested population were (mean ± SD): 2.944 ± 1.394 uIU/mL.

The difference in TSH values between fasting and 2 hr PP states in overweight females was (mean ± SD): 1.048 ± 0.044 uIU/mL.

This difference was statistically significant with a p-value < 0.01.

Conclusion: We conclude by stating that the timing of the sample affects TSH values, and this should be factored into making decisions in the diagnosis of thyroid disorders.

In this study, 30% of patients have been classified as having subclinical hypothyroidism, and their diagnosis would have been missed in the case of a postprandial sample.

Prevalence of Primary and Subclinical Hypothyroidism and Impact of Metformin on Thyroid Hormones in Patients with Type 2 Diabetes Mellitus in a Tertiary Care Hospital

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Background: The most prevalent endocrine illnesses in the world, diabetes mellitus and hypothyroidism, frequently coexist and have an impact on one another.

Methods: About 268 adult type 2 diabetes mellitus (T2DM) patients were enrolled in this cross-sectional observational study, and their thyroid function was assessed using a thyroid profile test. Chemiluminescent microparticle immunoassay (CMIA) was used to calculate the levels of fT3, fT4, serum thyroid-stimulating hormone (TSH), and antithyroid peroxidase (anti-TPO) antibody. The prevalence of thyroid disorders was analyzed in connection to age distribution, gender distribution, body mass index (BMI), length of diabetes, and glycated hemoglobin (HbA1C).

Results: Subclinical hypothyroidism (SCH) and overt hypothyroidism (OH) had prevalence rates of 7.6 and 12.4%, respectively. In OH, SCH, and euthyroid patients, the prevalence of anti-TPO positivity was 94.5, 51.5, and 10.8%, respectively. Patients with a female gender, age >60, long-term diabetes, and subclinical hypothyroidism were more likely to have these conditions. About 64.5% (n = 171) of 268 patients were using metformin. Patients taking metformin had significantly lower mean TSH levels. The mean free T4 and free T3 levels, however, did not differ significantly between the two groups.

Conclusion: Hypothyroidism is very common, especially subclinical hypothyroidism in people with diabetes. Patients receiving metformin therapy had TSH levels that were noticeably lower. For early diagnosis and efficient therapy, patients with diabetes mellitus should routinely be screened for thyroid dysfunction.

Gastroenterology

Prevalence of Hyperglycemia in Cirrhosis of Liver and its Correlation with Meldna Score

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Introduction: The pathological features of liver cirrhosis consist of the development of fibrosis to the point of architectural distortion with the formation of regenerative nodules. Recent studies have shown that cirrhosis of the liver is associated with impaired glucose tolerance and diabetes mellitus. Hyperglycemia in cirrhosis is associated with a higher risk of developing hepatic decompensations such as ascites, variceal bleeding, hepatic encephalopathy, renal dysfunction, refractory ascites, hepatocellular carcinoma along with reduced survival rates than normoglycemic patients with liver cirrhosis.

Materials and methods: Cross-sectional observational study of patients attending a tertiary care hospital from September 2022 to July 2023. The study population consisted of 30 patients with cirrhosis of the liver diagnosed by standard clinical, biochemical, and/or radiological findings (ultrasound or computed tomography) and liver biopsy whenever required. The model for end-stage liver disease with sodium (MELD Na) score was calculated.

Observation: Out of 30 patients with cirrhosis of the liver, hyperglycemia was seen in 16 patients, which is 53%. The median MELD Na score in hyperglycemic patients was 23.50 with an interquartile range (IQR) of 22–29. The median MELD Na in impaired glucose tolerance (IGT) was 11 with IQR (14.75–21.25). The median for normoglycemia was 11 with IQR (8.50–15), which is statistically significant (p < 0.001).

Conclusion: Patients with cirrhosis had a high prevalence of hyperglycemia. The presence of hyperglycemia is well-associated with the severity of cirrhosis in the form of a higher MELD Na score.

Clinical Profile of Gastrointestinal Neuroendocrine Tumors: A Case Series

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Background: Gastrointestinal neuroendocrine tumors (NETs) are rare, slow-growing tumors with distinct clinical, histological, and biological characteristics, the prevalence of which has increased in the last few decades. NETs can develop in any part of the gastrointestinal tract (GIT), including the small intestine, rectum, colon, appendix, and stomach. The majority of GIT neuroendocrine tumors are nonfunctioning and are diagnosed incidentally during workup for other indications. In this case series, we discuss the clinical and histological profile of 24 cases of GIT NETs diagnosed in a tertiary care hospital in southern India from March 2021 to August 2023.

Aim: To describe the clinical and histological profile of patients diagnosed with gastrointestinal NETs in a tertiary care hospital in southern India from March 2021 to August 2023.

Methodology: We retrospectively searched clinical case records and electronic medical records (EMR) for patients diagnosed with GIT NETs between March 2021 and August 2023. We analyzed records for their presenting complaints, clinical diagnosis, investigation findings, gross findings on endoscopy, and histologic features.

Results: The majority of patients in this case series were male (62.5%). Common presenting complaints were abdominal pain (33%), bloating (45%), loss of appetite (33%), and easy fatigability (20%). Most of them were diagnosed by duodenal biopsy (D1 and D2). Findings in endoscopy and colonoscopy included polyp, nodule, submucosal lesion, scalloped duodenal folds from which biopsy was taken and subjected to immunohistochemical marker study. Neoplastic cells showed positive cytoplasmic staining for chromogranin and synaptophysin. Ki-67, which is a proliferation index, and grading of the tumor were given. Most of the tumors were well-differentiated with Ki-67 <1%. Two people were subjected to DOTANOC, and endoscopic mucosal resection was done. One patient with small intestine NET with liver metastasis showed neoplastic cells positive for CD56 .

Site	Scopy finding	Ki index	Gastritis	Metastasis
Stomach	Lesser curvature (1)	<1% (15) 1–2% (4) 2% (4) 10% (1)	Helicobacter pylori gastritis (3) Atrophic gastritis (3) Erosive gastritis (3)	–
Duodenum	D1 polyp (13) D2 polyp (2) Scalloped duodenal folds (7)	–	–	–
Jejunum	Submucosal lesion (1)	–	–	Liver
Colon	Polyp (2)	–	–	–

Conclusion: Gastrointestinal NETs, though rare, have demonstrated an increasing incidence and prevalence. Patients presenting with various gastrointestinal symptoms undergo evaluation and may be found to have neuroendocrine tumors upon biopsy. Those patients without symptoms are recommended for regular follow-up. Patients with symptoms and significant tumor grading are advised to undergo a DOTANAC scan, and if necessary, EMR is performed.

Role of Platelet Indices in Predicting the Severity of Acute Pancreatitis: A Cross-Sectional Study

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Introduction: Acute pancreatitis (AP) refers to inflammation of the pancreas, accompanied by oxidative stress and free radical production leading to tissue damage. This triggers platelet activation, resulting in a more generalized inflammatory event. Mean platelet volume (MPV) is widely used as a surrogate marker of platelet function and has been shown to reflect inflammatory burden and disease activity in various conditions. The present study aims to investigate MPV as an index of platelet activation and its potential relationship with clinical and radiological parameters and other inflammatory markers during AP.

Objective: To assess whether platelet indices are useful in predicting the severity of disease in acute pancreatitis.

Materials and methods: This cross-sectional study was conducted at Government Thiruvannamalai Medical College Hospital, Department of General Medicine, Tiruvannamalai, India, from November 2022 to June 2023. A total of 75 consecutive patients with acute pancreatitis comprised the study group, while 75 patients with functional dyspepsia served as the control group for platelet indices.

Results: The mean age of the patients with acute pancreatitis was 37 ± 9.7. The majority of the patients were males (80%). The sensitivity and specificity of MPV on day 1 (97.4 and 94.6%) were comparable to those of neutrophil-to-lymphocyte Ratio (NLR) (89.5 and 97.3%) and total white blood cell (WBC) count (84.2 and 83.8%).

Conclusion: Mean platelet volume (MPV) and platelet large cell ratio on days 1 and 3 can serve as noninvasive biomarkers to predict the severity of acute pancreatitis without incurring additional costs.

Etiological and Clinical Profile of Patients with Esophageal Dysphagia: A Teaching Institution Experience

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Background: Dysphagia can affect any structure in the upper gastrointestinal tract, from the mouth to the lower esophageal sphincter. The etiologies range from benign causes to malignant lesions in the esophagus. There is a dearth of data regarding dysphagia in our population.

Methods: A total of 208 patients with complaints of dysphagia were screened for the study. After ruling out neurological or local oropharyngeal causes of dysphagia, 200 patients with suspected esophageal dysphagia (ED) were recruited in the study. Dysphagia was graded using a dysphagia scoring system. All patients underwent upper gastrointestinal endoscopy (UGIE) and were evaluated for the presence of mechanical and nonmechanical causes of esophageal dysphagia.

Results: The mean age of patients with dysphagia was 53.8 ± 15.4 years. The proportion of males and females was 82 and 118, respectively. The mean duration of symptoms was 7.2 ± 10.6 months (median 3 months). Ninety-eight patients (49%) with dysphagia were in the age-group of 56–65 years. Dysphagia score was 0 among 58, 1 among 14, 2 among 46, 3 among 56, and 4 among 26 subjects. Foreign body sensation was the most frequently associated chief complaint in 90 (45%) patients, followed by chest pain in 58 (29%), odynophagia in 50 (25%), throat pain in 48 (24%), recurrent vomiting in 44 (22%), pain abdomen in 14 (7%), cough on swallowing in eight (4%), and hematemesis in two (1%). Ninety-six (48%) patients had mechanical dysphagia, and 104 (52%) had a nonmechanical cause of dysphagia. Among the mechanical causes of dysphagia, 68 patients (70.8%) had esophageal growth, and 28 (29.2%) had esophageal stricture. Among the 28 patients with esophageal stricture, 12 (42.8%) had a stricture with no underlying cause identified, eight (26.8%) had a stricture with concomitant esophageal growth, four (13.4%) had a stricture secondary to corrosive injury, and four (13.4%) had a stricture secondary to esophagitis. Among 76 patients with esophageal growth (68) and stricture with growth (8), 67 (88.2%) patients had squamous cell carcinoma (SCC), with none having adenocarcinoma. Among nonmechanical causes, 50 (48.1%) had a Globus sensation, 24 (23.1%) had a hiatus hernia, 16 (15.4%) had a functional cause, 10 (9.6%) had gastritis, and 4 (3.8%) had achalasia cardia (Tables 1 and 2).

Conclusion: Dysphagia is a common problem with varied etiologies. Esophageal growth and globus sensation are among the predominant causes of mechanical and nonmechanical ED, respectively. We stress that all patients with dysphagia must be meticulously investigated.

Table 1: Chief complaints in patients with dysphagia

Chief complaints	Number of patients (n = 200)
Foreign body sensation	90 (45%)
Chest pain	58 (29%)

Chief complaints	Number of patients (n = 200)
Odynophagia	50 (25%)
Throat pain	48 (24%)
Recurrent vomiting	44 (22%)
Pain abdomen	14 (7%)
Cough on swallowing	8 (4%)
Hematemesis	2 (1%)

Table 2: Types of dysphagia in patients

Mechanical causes	*(N = 96)*	*Nonmechanical causes*	*(N = 104)*
Esophageal growsawth	68 (70.8%)	Globus sensation	50 (48.1%)
Esophageal stricture	28 (29.2%)	Hiatus hernia	24 (23.1%)
		Functional	16 (15.4%)
		Gastritis	10 (9.6%)
		Achalasia cardia	4 (3.8%)

A Case of Intervention of Intragastric Balloon and Study of its Safety and Side Effects on Weight Loss

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Obesity and its complications are on the rise globally, leading to the exploration of various interventions. Lifestyle modifications, drug therapy, devices like the intragastric balloon (IGB), and bariatric surgery are among the available options. Lifestyle changes, including supervised diet, exercise, and behavior modification programs, are recommended for all patients with obesity but may not always achieve desired weight goals. Drug therapies, though increasingly available, may not be well-tolerated. Bariatric surgery, while highly effective, is invasive and not indicated for all individuals with obesity. The Orbera365 IGB offers an alternative for those who do not meet bariatric surgery criteria but struggle to achieve sufficient weight loss with lifestyle interventions and medical therapy alone.

A 19-year-old female patient with a weight of 95 kg and a body mass index (BMI) of 32.87 kg/m^2 sought intervention for weight loss. The patient opted for the Orbera365 IGB, designed for placement for up to 12 months. The patient underwent counseling regarding the risk–benefit relationship and the possibility of early removal if serious adverse reactions occur. Potential complications were explained, including blockage of the bowel, insufficient weight loss, stomach discomfort, nausea, vomiting, and others. Informed consent was obtained for the Orbera365 IGB intervention.

A diagnostic endoscopy confirmed the absence of contraindications, ensuring the procedure's safety. The Orbera365 balloon was inserted through the esophagus on July 13, 2023. The patient was sent home after 1 hour, following which a 12-month comprehensive program on dietary nutrition and fitness was provided.

Subsequent follow-ups assessed pain, nausea, vomiting, and overall well-being. The patient reported no adverse experiences. Over a period of 2 months and 10 days, the weight and BMI dropped from 95 kg and 32.87 kg/m^2 to 87.8 kg and 30.38 kg/m^2, respectively.

As of now, the patient has not experienced any adverse reactions or complications post the insertion of the Orbera365. Continued observation is necessary until the intended 12-month period to assess the safety and effectiveness of the Orbera365 intervention for weight loss.

A Noninvasive Predictor of Mortality of Acute Variceal Bleeding in Patients with Cirrhosis—Platelet Albumin Bilirubin Score

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Introduction: India bears a disproportionately large burden of liver disease, contributing to 18.3% of the two million fatalities caused by liver disease globally in 2015. Esophagogastroduodenoscopy is the gold standard for detecting variceal bleeding. This study aims to utilize a noninvasive marker, the "platelet-albumin-bilirubin (PALBI) score," to assess in-hospital mortality and rebleeding in cirrhotic individuals presenting with acute upper gastrointestinal bleeding. This study is the first of its kind among the Indian population and is designed as a comparative study.

Materials and methods: The study was conducted at Amrita Institute of Medical Sciences, Kochi, in the Department of General Medicine, from 2021 to 2022. After calculating the PALBI score, patients were categorized into three grades and then into two groups. The rates of rebleeding and inhospital death were compared between the two groups.

Observation: Seventy patients with acute variceal bleeding were selected based on the PALBI score and divided into two groups—35 in group I and 35 in group II. In group I, nine (25.7%) patients died, and 26 (74.3%) survived, while in group II, 14 (40%) were alive, and 21 (60%) were deceased. The statistical analysis revealed a p-value of 0.004, indicating that mortality in group II was significantly higher than in group I.

Conclusion: The PALBI score proves to be an easy-to-use, objective measure that could serve as a suitable alternative for assessing inhospital mortality in patients with acute variceal bleeding. Future prospective investigations are encouraged to further validate the accuracy of the PALBI score in predicting long-term prognosis.

Herpes Esophagitis with Spontaneous Esophagopleural Fistula, Pyopneumothorax

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Case: A 29-year-old male presented to the emergency room (ER) with shortness of breath for 2 days, wheezing, and chest discomfort for 7 days. On examination, herpetic lesions were observed over the upper part of the right chest. Initial evaluation revealed a right-sided pyopneumothorax. An intercostal drain (ICD) was placed, and pus was drained from the pleural cavity. On the second day of ICD placement, oral feeds were noted draining through the ICD. The patient was subsequently referred for esophagogastroduodenoscopy (EGD).

Investigation: Pleural fluid analysis showed exudative fluid with total leukocyte count (TLC) of 75,000 cells/cumm, with 70% neutrophils and 30% lymphocytes. Contrast-enhanced computed tomography (CECT) of the chest revealed multiple external fistulas in the proximal-mid-distal esophagus, a large fistulous tract in the distal esophagus communicating with the pleural cavity, and multiple loculated pockets of hydropneumothorax. EGD showed a proximal esophageal fistula communicating with the pleural cavity.

Treatment: Closure of the esophagopleural fistula was performed using an over-the-scope clip. The patient was prescribed Tab. Acyclovir 800 mg five times a day for 7 days.

Follow-up: Repeat endoscopy and computed tomography (CT) scans showed complete healing of the esophageal ulcer.

Discussion: The exact cause of the esophagopleural fistula was unknown, as a biopsy was not taken from the fistulous tract. The temporal relationship with herpetic skin lesions suggests a probable diagnosis of perforated esophageal herpetic ulcers. This diagnosis was further supported by the healing of the fistulous tract with endoscopic closure and antiherpetic treatment.

Unveiling the Silent Threat: Acute Kidney Injury in Liver Cirrhosis

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Introduction: Renal impairment is a common complication in patients with liver cirrhosis, contributing to prolonged hospital stays and increased mortality. The severity of acute kidney injury (AKI) in cirrhotic patients is directly proportional to the risk of mortality. This observational prospective study aimed to compare the clinical and biochemical profiles of cirrhotic patients with and without AKI, determine risk factors and outcomes, and assess the proportion of cirrhotic patients requiring hemodialysis.

Aims and objectives: Study and compare the clinical and biochemical profiles of patients with liver cirrhosis with and without AKI.

Determine risk factors, outcomes, and the proportion of cirrhotic patients developing AKI, including those requiring hemodialysis.

Materials and methods: The study involved 381 patients meeting inclusion and exclusion criteria in a tertiary care hospital. AKI staging followed International Club of Ascites (ICA) AKI guidelines. Correlation analysis was performed for AKI and various factors, including age, gender, symptoms, comorbidities, biochemical parameters, acute on chronic liver failure, spontaneous bacterial peritonitis, Child–Turcotte–Pugh (CTP) score, and model for end-stage liver disease (MELD) score. Survival analysis was conducted for AKI patients.

Observations: Alcohol use was the predominant cause of liver cirrhosis in the study population. Of the 381 participants, 66.7% had AKI, distributed across stages 1 (26.77% in stage 1A and 53 in stage 1B), stage 2 (20.9%), and stage 3 (18.11%). Vulnerability to AKI was observed in elderly patients (>60 years), males, diabetic patients, and those on diuretic and lactulose treatment. AKI patients exhibited distinctive laboratory profiles with elevated white blood cell count, international normalized ratio (INR), total bilirubin, serum glutamic oxaloacetic transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT), blood urea nitrogen (BUN), and creatinine, along with lower platelet counts, serum sodium, and albumin. Higher MELD scores and CTP class correlated significantly with AKI prevalence and mortality. Mortality rates increased with AKI severity: stage 1a (14.285%), stage 1b (20.75%), stage 2 (38.75%), and stage 3 (72.46%).

Conclusion: The study highlights higher mortality among cirrhotic patients with AKI, with rates escalating based on AKI severity. Early identification and aggressive management of AKI in cirrhotic patients are crucial for improved clinical outcomes.

Role of Endoscopic Ultrasound Coiling In Management of a Case With Gastric Fundal Varices

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Introduction: A 53-year-old female presented with abdominal pain, yellowish discoloration of sclera and urine for the past 2 months, along with melena for the past 2 weeks. She reported a history of similar complaints for the past 6 months and a 10-year history of alcohol intake.

Investigations revealed deranged liver function tests (LFTs) and a picture consistent with alcoholic cirrhosis. Upper gastrointestinal endoscopy showed gastric fundal varices.

Hemoglobin: 9.4 gm/dL

Observation: Clinically, she was diagnosed with alcoholic liver disease due to the typical history of alcohol abuse, confirmed by laboratory investigations showing aspartate aminotransferase (AST) > alanine aminotransferase (ALT). Endoscopic ultrasound-guided coiling (EUS-coiling) was performed for gastric fundal varices.

Conclusion: The use of EUS-coils in managing fundal varices is considered a better choice compared to plain upper gastrointestinal endoscopic gluing into varices. Therefore, patients presenting with decompensated liver disease should be screened for varices in the upper gastrointestinal tract and advised either endoscopic variceal ligation (EVL) banding or EUS-coiling based on the location of the varices.

Geriatrics

PREVALENCE OF GERIATRIC SYNDROMES AT A TERTIARY CARE HOSPITAL IN INDIA

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Introduction: Geriatric syndromes, characterized by shared risk factors such as older age, cognitive impairment, functional impairment, and impaired mobility, are common serious conditions among the elderly but are often under-recognized. These syndromes contribute significantly to mortality, morbidity, and increased healthcare costs. The study aimed to determine the prevalence of geriatric syndromes in an outpatient clinic of a tertiary care hospital.

Materials and methods: This cross-sectional study involved 231 elderly patients aged 65 years and above (98 males, 133 females) attending the medicine outpatient department (OPD) in a tertiary care hospital. A comprehensive geriatric assessment was conducted, and the data were analyzed using appropriate statistical methods.

Observations: The mean age of the population was 72.32 (± 5.11) years. The prevalence of geriatric syndromes in the study was 80.5%. The most common comorbidity was hypertension (58.8%), followed by diabetes mellitus (35%) and coronary artery disease (16.8%). In the study, 19.4% of patients had no geriatric syndromes, 64.5% had 1–4 geriatric syndromes, and 16% had >4 geriatric syndromes. The most common geriatric syndromes were arthritis (47.1%), visual impairment (43.7%), and polypharmacy (38.5%). The prevalence of >4 geriatric syndromes was higher (28.7%) in the age-group >75 years compared to the age-group 65–74 years (9.3%). Patients with >4 geriatric syndromes had a significantly high timed up and go (TUG) value (p = 0.03). Body mass index (BMI) and hand grip showed no significant difference with geriatric syndromes in the study.

Conclusion: The prevalence of geriatric syndromes in outpatient settings was high, and routine medical assessments often under-recognized these syndromes. Routine screening through comprehensive geriatric assessment is crucial to prevent further disabilities in the elderly.

Visual impairment	101 (43.7)	55 (36.4)	46 (57.5)*	0.003
Hearing impairment	58 (25.1)	33 (21.9)	25 (31.2)	0.151
Falls	67 (29)	35 (23.2)	32 (40)*	0.010

Table 1: Patient characteristics

Patient characteristics	*Total N = 231*	*65–74 years N = 151*	*≥75 years N = 80*	*p-value*
Fractures	21 (9)	12 (7.9)	9 (11.2)	0.472
Depression	33 (14.2)	18 (11.9)	15 (18.8)	0.170
Cognition (mild impairment)	14 (45.1)	3 (2)	11 (13.8)*	0.001
Urinary incontinence	37 (16)	19 (12.6)	18 (22.5)	0.060
Arthritis	109 (47.1)	54 (35.8)	55 (68.8)*	0.000
Polypharmacy	89 (38.5)	55 (36.4)	34 (42.5)	0.396
Activities of daily living (intact)	231 100)	151 (100)	80 (100)	–
TUG	—	11.13 ± 3.17	11.84 ± 4.34	0.202
Hand grip	—	17.44 ± 4.48	17.73 ± 4.76	0.663
BMI	—	22.08 ± 2.31	22.10 ± 2.25	0.948
Geriatric syndromes	—	—	—	0.000
Nil	45 (19.4)	35 (23.2)	10 (12.5)	—
1–4	149 (64.5)	102 (67.5)	47 (58.8)	—
>4	37 (16)	14 (9.3)	23 (28.7)*	—

Table 2: Geriatric syndromes and associated factors

	Geriatric syndromes Nil n = 45	*1–4 n = 149*	*>4 n = 37*	*p-value*
BMI	22.67 ± 2.15	22.02 ± 2.26	21.65 ± 2.47	0.113
TUG	10.16 ± 1.77	11.56 ± 3.91	12.11 ± 3.85*	0.030
Hand grip	18.51 ± 4.46	17.4 ± 4.62	16.95 ± 4.41	0.247
Polypharmacy	–	62 (41.6)	27 (73)*	0.000

To Determine the Frailty Index Score in Intensive Care Unit and its Association with Patient Outcomes

Swati

Background: Frailty is defined as a syndrome characterized by reduced strength, endurance, and physiologic function, leading to increased vulnerability to adverse health outcomes. In elderly patients admitted to the intensive care unit (ICU), frailty has potential implications for morbidity and mortality outcomes.

Methods: The study analyzed 60 patients aged ≥65 years who had a hospital stay of at least 24 hours and met the inclusion criteria. Sociodemographic data and medical histories were collected. The frailty of patients was assessed using Fried's phenotype criteria, categorizing them into robust, pre-frail, and frail groups.

Results: Out of 60 elderly ICU patients, 36 (60%) were categorized as frail, 20 (33.3%) as pre-frail, and 4 (6.7%) as robust based on Fried's phenotype. Frail patients presented advanced age (78 ± 5.6 years, $p = 0.015$) and longer ICU stays (6 ± 2.8 days, $p = 0.032$). Frail patients showed a notable increase in morbidity, with 41.7% affected ($p = 0.05$). Among them, 33.3% needed significant inotropic support ($p = 0.06$), and 25% required mechanical ventilation ($p = 0.032$). The age-group of 75–84 exhibited higher morbidity (45%, $p = 0.04$). Although comorbidities like hypertension and diabetes demonstrated increased morbidity, their statistical significance was less pronounced.

Conclusion: The assessment of frailty, utilizing Fried's phenotype, showcased a significant correlation with both morbidity and mortality in elderly ICU patients. This highlights the potential of frailty evaluations in guiding clinical decisions, risk stratification, and optimizing care for the geriatric population in ICU settings.

Hematology

Clinical Profile Of Secondary Erythrocytosis: a Case Series

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Introduction: Erythrocytosis refers to erythrocyte count above the sex-specific normal range and is subclassified into relative erythrocytosis, caused by a reduction in plasma volume, or absolute erythrocytosis due to increased erythrocyte mass. Primary erythrocytosis refers to autonomous production of erythrocytes. Secondary erythrocytosis (SE) is caused by a physiologically appropriate response to elevated serum erythropoietin levels. Although the prevalence of secondary erythrocytosis is difficult to estimate, it is higher than that of polycythemia vera (PV). All cases of SE from January 2022 to August 2023 were reviewed, and 21 cases were included.

Methodology:

Number of patients	*Diagnosis*	*Risk factors*
10	Cerebrovascular accident	Smoking
4	Chronic obstructive pulmonary disease (COPD)	Smoking
3	Congenital heart disease	—
1	Interstitial lung disease-organizing pneumonia	—
1	Congenital methemoglobinemia	—
1	Encephalopathy secondary to alcohol intake	Alcohol
1	Polycythemia secondary to high altitude	—

Conclusion: Secondary erythrocytosis (SE) patients are mostly younger, male, active smokers, and obese. The treatment approach in SE depends on the etiology involved and will lead to the correction of the hematologic abnormality. Cerebrovascular accident (CVA) is common in patients with polycythemia—mainly observed in the anterior circulation stroke. Low-flow oxygen therapy can correct hypoxia and hence SE, especially in COPD. Routine venesection in patients with congenital heart disease should be reduced as they are more prone to iron deficiency anemia. Iron status should be regularly checked in these patients and repeated timely.

The Clinical Profile in Patients with Von Willebrand Disease: a Common but Underdiagnosed Entity

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Introduction: von Willebrand disease (vWD) is the most frequent inherited bleeding disorder (~1%) with symptoms ranging from totally asymptomatic (>70%) to severe bleeding complaints like epistaxis, menorrhagia, or arthropathy (<0.01%), mimicking hemophilia. The aim of the study was to investigate the clinical profile of patients with vWD, classify the severity, and find out the complications due to this disease.

Materials and methods: The study was conducted among 23 patients of vWD presenting in the medicine outpatient department (OPD) and hematology clinic at Lok Nayak Hospital, Delhi, India, for a duration of 1 year. Their clinical, hematological, and coagulation profile, including vWF levels, vWF activity, VWF ristocetin cofactor (vWF:RCo) activity, platelet aggregation, and factor VIII assay, were documented. Symptoms of bleeding were assessed using International Society on Thrombosis and Haemostasis (ISTH) bleeding assessment tool (BAT) score containing 14 categories. Finally, scores were calculated, and results were analyzed using appropriate statistical methods.

Results: In total, 23 patients of mean age 23.30 years (16–33 years) were recruited in the study, out of which 82.6% were females and 17.4% were males; 52.2% were type 1, 34.8% were type 3, and 13% were type 2 vWD. Among all, 47.8% of patients had blood group O+, while 17.4, 26.1, and 8.7% had A+, B+, and AB+ blood groups, respectively. Menorrhagia was the most common complaint present in 89.5% of the patients, whereas epistaxis, bleeding, or bleeding after trauma were common findings among males (50%) with a mean bleeding score in male patients of 6.250 + 3.50, while it is 6.16 + 2.13 in females. Hospitalization was required in 34.8% of patients, mostly due to uncontrolled bleeding despite conservative measures or symptomatic anemia, even intramuscular bleed. It was more common among males (75%) than females (26.32%). Patients with blood group B+ (37.5%) and O+ (62.5%) needed more hospitalization than others (0%).

Conclusion: von Willebrand disease (vWD) is more common among females, but severity is more in males. The disease is more common and more severe in patients with O+ and B+ blood groups. We should suspect and investigate the cases for proper diagnosis and management, especially among female patients.

Surgical Aspects In Hemophilia: a New Beginning

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Introduction: The hemophilia population today has a wide life expectancy due to better modalities of treatment available. With longer life spans, individuals are exposed to increased physical stress, leading to increased requirements for surgical procedures. The procedures discussed here include minor and major procedures of various specialties like root canal tests in dentistry and surgical debridement of hematomas in general surgery.

Materials and methods: The patients enrolled in the study were known hemophiliacs between the age groups of 12 and 60 years who were planned for or required a surgical procedure. The study went on for a period of 12 months. The patients who were on anticoagulation were excluded. The patients were observed before and after the procedure, and a track of their intraoperative course was also kept. Pre-op assessment included a detailed analysis of the type of surgery (major/minor), procedure name, the anesthesia planned, biochemical parameters, SF-36, fluorescence *in situ* hybridization (FISH) score, and antihemophilic factor (AHF) requirement. The intraoperative evaluation included the amount of blood lost, the amount of fluids given, blood transfusion(s), if needed, and the duration of surgery.

Post-op assessment included the evaluation of hemostasis achieved, SF-36 and FISH score, and AHF requirement after surgery. SF-36 denoted the quality of life, and FISH denoted functional dependence of the patients. AHF dosing before, during, and after the procedures were all taken into consideration.

Observations: Thirty hemophiliacs were enrolled. The observed results were tallied. Significant improvements were noted post-surgery. A depreciation of 17.8% was noted in FISH scores after surgery, and an increase of 7.9% was seen in SF-36 scores. AHF requirement was also found to be reduced by 24% after surgical evaluation. This implied that giving prompt replacement is necessary to obtain a better surgical outcome.

Conclusion: In modern times, hemophiliacs can now undergo surgical procedures, just like a normal person. Extra care has to be given in the management of perioperative bleeding. Adequate perioperative factor replacement in patients with hemophilia minimizes perioperative bleeding and ensures a favorable outcome after surgery. Improved quality of life and better surgical approaches have improved the functional status and empowered hemophiliacs to live a disability-free life.

Risk Factors and Prognostic Markers Affecting Outcome in Sickle Cell Crisis Patients

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Introduction: Sickle cell disease (SCD) is one of the spectrums of sickle cell syndromes, which occurs due to a genetic mutation leading to the substitution of glutamic acid to valine at the sixth position of the beta globin chain. The range of abnormal biomarkers demonstrates the multisystem nature of SCD and has helped to clarify the relevance of many pathological processes, including inflammation, hypercoagulability, hemolysis, vasculopathy, endothelial dysfunction, and oxidative reperfusion injury. They are mostly closely intercorrelated and may give useful clinical information beyond measuring the total hemoglobin.

Avoidance of precipitating factors like dehydration, infection, fever, excessive exercise, anxiety, temperature changes, and hypoxia. High fluid intake, vaccinations, antibiotics, prophylactic anti-malarial, pain medications are the general supportive treatment available. Two only effective disease-modifying therapies for SCD—hydroxyurea and chronic transfusion are potentially widely available but remain under-utilized. Hydroxyurea reduces mortality, morbidity, rate of hospitalization without significant life-threatening side effects at the lowest possible tolerated dose in Indian Sickle cell patients.

Materials and methods: A total of 168 SCD patients in crisis were included in this cross-sectional observational study using nonprobability, convenient sampling, and evaluated for various parameters. The risk factors include age, sex, residence, history of infection, type of crisis, exposure to heat and cold, discontinuation of hydroxyurea, and overnight sleeplessness. The hematological, biochemical, and inflammatory parameters include hemoglobin (Hb), total leukocyte count (TLC), total platelet count (TPC), hematocrit (HCT), erythrocyte sedimentation rate (ESR), serum urea, serum creatinine, total bilirubin, aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP), C-reactive protein (CRP), D-dimer, serum ferritin, serum lactate dehydrogenase (LDH), fetal hemoglobin (HbF), adult

hemoglobin (HbA), hemoglobin A2 (HbA2), and hemoglobin S (HbS) levels.

Observation: The maximum number of patients were male compared to female, and most patients were from rural households. The most common clinical symptoms and sign were bone pain and icterus, respectively. The history of exertion was the most common risk factor causing sickle cell crisis. The study group was further divided into the recovery group and mortality group depending on the mortality of the patients. Discontinuation of hydroxyurea and overnight sleeplessness were the most common risk factors seen in patients of the mortality group.

In the present study, the mortality rate was found to be 26.19%, with 44 out of 68 patients dying during or following the crisis. Verghese et al. (2019) shows that the mortality in sickle cell crisis patients is 24% (12.2–35.8%).

Parameters	*Recovery group*	*Mortality group*
Average age	26.7	27.77
Mean value of Hb	9.16 + 2.17	6.45 + 1.76
CRP	15 + 6.9	92.94 + 59.031
D-dimer	3.156 + 4.54	8.33 + 5.45
LDH	702.61 + 577.63	2024.79 + 962.30
Ferritin	440.68 + 89.44	766.02 + 311.49
HbF	19.86 + 9.23	11.25 + 3.13
HbA	7.67 + 14.81	5.63 + 8.119
HbA2	1.32 + 0.35	2.832 + 0.752
HbS	69.9 + 12.56	79.38 + 8.79

In the univariate analysis of our study, we observe that the association of mortality in sickle cell patients with a history of fever, discontinuation of hydroxyurea, history of infection, low Hb, low HbF, high HbS, high CRP, high D-dimer, high LDH, high ferritin with a *p*-value < 0.05 is significant. Discontinuation of hydroxyurea, with the crude odds ratio of 13.69, has the strongest association, followed by a history of infection with an odds ratio of 7.69, and then a history of fever with a crude odds ratio of 5.494. Low Hb, low HbF, high HbS, high CRP, high D-dimer, high LDH, high ferritin have a positive association with Crude odds ratio > 1.

Conclusion: Out of all risk factors and prognostic markers, discontinuation of hydroxyurea, history of fever, low hemoglobin levels, and high serum LDH levels have a positive association with mortality in sickle cell crisis patients. Out of these, discontinuation of hydroxyurea has the strongest association with mortality, as seen in both univariate and multivariate analysis.

Gangrenous Unveiling: A Case Report of Smouldering Myeloma Presenting with Digital Gangrene

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Introduction: Multiple myeloma (MM) is a B-cell malignancy characterized by abnormal proliferation of plasma cells that expand in the bone marrow and produce a monoclonal Ig, also known as M-protein. Several signs and symptoms of the condition are related to the excess amounts of the monoclonal Ig, such as hyperviscosity syndrome, amyloidosis, renal failure, or autoimmune phenomenon. The monoclonal Ig can clump together and cause cryoglobulinemia, usually of type I. Cutaneous manifestations associated with type I cryoglobulinemia include Raynaud syndrome, acrocyanosis, livedo, urticaria, and cold-induced necrotic ulcers of the extremities. Only a few reports of MM with digital necrosis have been described.

Case description: A 44-year-old male, resident of Srinagar with no known comorbidities and not on any medication, presented with complaints of blackish discoloration of toes and tips of fingers for 2 months. The lesions have not progressed beyond the toes and fingertips. He has a 15 pack/year history of cigarette smoking and has been a cannabis user for 10 years. There is no history suggestive of claudication, paraesthesia, joint pain, rash, oral ulcers, and arthralgia. There is a history of MM in the patient's sister (post stem cell transplantation).

On examination, the patient had normal vital parameters. The pulse rate was 74/minute, in the right radial artery, with all peripheral pulses including the dorsalis pedis palpable and bilaterally symmetrical. There was dry gangrene of the medial 4 toes of both sides and the distal phalanx of the right ring finger with nonspecific changes in the other fingers. The rest of the systemic examination was normal.

An impression of Buerger's disease/autoimmune small vessel vasculitis/cannabis arteritis/cryoglobulinemic vasculitis was made.

The USG Doppler showed triphasic flow in all limbs, and computed tomography (CT) angiography of lower limbs was normal, ruling out Buerger's disease. Hemogram, liver, kidney, and thyroid function were normal. Antinuclear antibody (ANA) [by immunofluorescence assay (IFA)], extractable nuclear antigen, antineutrophil cytoplasmic antibody, anticardiolipin, and lupus anticoagulant were negative. Anti hepatitis C virus (HCV) + but HCV ribonucleic acid (RNA) titers were insignificant. Human immunodeficiency virus (HIV) and hepatitis B virus (HepB) were negative. Cryoglobulins done twice were negative. Erythrocyte sedimentation rate (ESR) 92, albumin 3.7, globulin 4.4, albumin-to-globulin ratio (AG ratio) was 0.8 (AG reversal).

This led us to send protein electrophoresis, which showed an M band of 0.88 gm/dL in the gamma region. Subsequently, the myeloma profile was sent in which serum IFA showed monoclonal gammopathy with IgG and kappa restriction. B2 microglobulin—3621, lactate dehydrogenase (LDH)—187. Bone marrow aspirate showed 8% plasma cells, and the bone marrow biopsy immunohistochemistry (IHC) showed 10–15% plasma cells with kappa restriction (95% of total cells) and cells positive for CD138 and MUM1. Also, to establish involvement of small vessels, a skin biopsy was done. It showed perivascular infiltrate with fibrinoid necrosis of small vessels.

On reviewing literature and in consultation with the hematology department, to prevent progression in the future and the coming winter, the patient was advised bortezomib, cyclophosphamide, and dexamethasone-based chemotherapy apart from blood thinners, but the patient decided to seek further treatment near his residence. The patient is currently on rivaroxaban, cilostazole, and aspirin with no progression and is on close monitoring for myeloma.

Conclusion: Digital necrosis is a rare and atypical presentation of MM. Most often, it is related to type I cryoglobulinemia, a condition that requires specific management like plasmapheresis and chemotherapy. It may lead to misdiagnosis and delayed treatment. Though in our case we were not able to demonstrate cryoglobulins, fibrinoid necrosis of small vessels was found. Clinicians should be aware of this rare manifestation and consider MM diagnosis even in the absence of classical calcium elevation, renal dysfunction, anemia and bone disease (CRAB) criteria.

Case Series of Neuro and Hematological Complications in Patients of Sickle Cell Disease in Tata Main Hospital

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Introduction: Sickle cell disease (SCD) is a group of hemoglobinopathies that manifest with varying severity, with homozygous sickle cell anemia being the most severe form. Also known as the hemoglobin S diseases (HBSS) diseases, it is associated with a greater number of complications and more commonly with neurologic complications attributed to microvascular occlusion and obstruction in the central nervous system (CNS). The incidence of various neurological complications in SCD ranges from 6 to 30% in various series. The commonly reported complications include various ischemic events like silent cerebral infarction, ischemic stroke, transient ischemic attack (TIA), headache, seizures, and neurocognitive impairment. Hemorrhagic complications, more unusually spontaneous hemorrhage in any form (subarachnoid hemorrhage, extradural/subdural hemorrhage, hemorrhagic stroke) are rarely considered. We present a report of hemorrhagic and thrombotic complications in SCD patients who presented to Tata Main Hospital over a period of 1 year.

Materials and methods: Imaging studies included noncontrast computed tomography (NCCT) brain, venous Doppler, chest X-ray (CXR), and electrocardiogram (ECG). Hematological investigations comprised complete blood count (CBC), liver function tests (LFT), renal function tests (RFT), serum electrolytes, serum proteins, prothrombin time-international normalized ratio (PT-INR), activated partial thromboplastin time (aPTT), serum Iron, serum ferritin, and Hb electrophoresis.

Observations: All observations were made in patients with sickle cell anemia (SCA—Hb SS). Three patients presented with hemorrhagic manifestations—spontaneous extradural hematoma (EDH), while three presented with thrombotic complications of deep vein thrombosis.

Conclusion: Sickle cell disease (SCD) patients can present with both thrombotic and hemorrhagic complications. A high index of suspicion needs to be present. Early diagnosis and treatment decrease morbidity and mortality.

A Study on Indirect Hyperbilirubinemia at Tertiary Care Center in Telangana

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Introduction: Indirect hyperbilirubinemia is an uncommon clinical entity with varied presentation and numerous etiologies, including genetic factors, hemolytic anemia, nutritional deficiencies, and drug-induced causes. This study aimed to assess the clinical profile and etiology of indirect hyperbilirubinemia in adults.

Materials and methods: Adult patients aged >18 years with indirect hyperbilirubinemia were included. Patients with direct bilirubin >15% and hepatocellular and cholestatic patterns of jaundice were excluded. Patient demographic data and clinical profiles were noted. Complete hemogram, renal and liver function tests, lactate dehydrogenase, hemoglobin electrophoresis, sickling, osmotic fragility, Coombs test, and ultrasound abdomen were performed.

Observations: The mean age of the study population was 37.15 ± 12.66 years, with 79.7% being males. Diabetes mellitus (13.9%) was the most common comorbidity. Family history of jaundice was present in 6.3%. Dietary habits revealed that 15.2% were vegetarian, 7.6% were smokers, and 11.4% were alcoholic. The majority of the patients were asymptomatic (38%), followed by jaundice (20.3%) and fatigue (16.5%). The mean hemoglobin, mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC), red cell distribution width (RDW), and reticulocyte count were 12.39, 91.5, 34.9, 38.1, 20.4, and 2.3, respectively. The mean lactate dehydrogenase (LDH), total bilirubin, and indirect bilirubin were 1395.5, 3.1, and 2.18, respectively. Peripheral smear showed normocytic and normochromic anemia (63.3%), followed by microcytic hypochromic anemia (17.7%) and macrocytic anemia (13.9%). Ultrasound abdomen was normal in 63.3% of patients, followed by splenomegaly (13.9%) and hepatosplenomegaly (7.6%). Vitamin B_{12} deficiency (45.6%) was the most common cause, followed by Thalassemia trait (16.5%) and folic acid deficiency (10.1%).

Conclusion: Indirect hyperbilirubinemia is an uncommon but overlooked entity. Vitamin B_{12} deficiency was the most common etiology in our study. Early diagnosis and management lead to better outcomes.

Table 1: General characteristics and symptomatology of the study population

Parameter	*Frequency (percentage) N = 79*
Mean age in years (standard deviation)	37.15 ± 12.66
Mean body mass index (kg/m^2)	24.89 ± 4.89
Male	63 (79.7)
Diabetes mellitus	11 (13.9)
Hypertension	4 (5.1)
Coronary artery disease	3 (3.8)
Hypothyroidism	2 (2.5)
Family history of jaundice	5 (6.3)
Vegetarian	12 (15.2)
Smokers	6 (7.6)
Alcohol	9 (11.4)
Asymptomatic	30 (38)
Jaundice	16 (20.3)
Fatigue	13 (16.5)
Breathlessness	7 (8.9)
Fever	7 (8.9)

Table 2: Etiology of indirect hyperbilirubinemia

Parameter	*Frequency (percentage) N = 79*
Vitamin B_{12} deficiency	36 (45.6)
Thalassemia trait	13 (16.5)
Folic acid deficiency	8 (10.1)
Thalassemia intermedia	1 (1.3)
Autoimmune	1 (1.3)
Congestive heart failure	1 (1.3)
Undiagnosed	25 (31.6)

A Cold Turned a Boy Yellow: A Hemolytic Mystery

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Introduction: Hemolytic anemia is a condition characterized by the breakdown of red blood cells at a rate exceeding their production. This condition can result from various underlying causes, including inherited disorders, acquired conditions, and autoimmune reactions. The main sign is jaundice. The spleen

is enlarged because it is a preferential site of hemolysis, and in some cases, the liver may also be enlarged.

Case description: A 13-year-old boy presented with complaints of fever followed by yellow discoloration of eyes and urine. On examination, there was pallor, icterus, and hepatosplenomegaly. Initial hemoglobin—4.3gm%, reticulocyte count—12%, peripheral smear showed anisopoikilocytosis with microcytes, normocytes, elongated cells, polychromatophils, few macrocytes, and teardrop cells. Total bilirubin—14.17 mg/dL, indirect bilirubin—12 mg/dL, liver enzymes—normal, serum lactate dehydrogenase—3270 IU/L, direct Coombs test was positive, bone marrow aspiration showed no evidence of lymphoproliferative disorder. Immunohematology panel showed positive Donath-Landsteiner antibody (C3b/d positive, IgG negative). Final diagnosis—paroxysmal cold hemoglobinuria—autoimmune hemolytic anemia.

Conclusion: Paroxysmal cold hemoglobinuria is now recognized as one of the most common causes of acute transient hemolytic anemia in young children, usually triggered by a viral infection. The key diagnostic test, the Donath-Landsteiner test, has anti-P specificity and binds to red cells only at a low temperature (optimally at 4°C). When the temperature is shifted to 37°C, lysis of red cells takes place in the presence of complement. Consequently, there is intravascular hemolysis, resulting in hemoglobinuria. The timely recognition of this disease will allow prompt, supportive therapy and will help in quick resolution of hemolysis.

Recurrent Ischemic Stroke Unveils the Polycythemia Vera

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Introduction: Thrombotic events are frequent and significant complications of polycythemia vera (PV). Increased blood viscosity is a recognized cause of complications in PV. When hematocrit and blood viscosity increase, cerebral blood flow decreases.

Case description: A 55-year-old male presented to the emergency room with a 5-day history of inability to walk and weakness of the left upper limb and lower limb, decreased vision, and a history of fever, body pains, and visual disturbances 6 months before the onset of weakness. The patient was not hypertensive and had a history of admission 1 year ago with complaints of headache and subtle weakness of the right upper and lower limb which has improved. The patient is a nonsmoker and nonalcoholic. Central nervous system examination showed left hemiparesis without cranial nerve involvement and without higher mental function abnormalities.

Blood investigations revealed hemoglobin (Hb): 17.6 gm/dL, red blood cell (RBC): 8.41 million/cumm, hematocrit (HCT): 57.5, white blood cell (WBC): 11,100 cells, platelets: 5.28 lakh/cumm. Magnetic resonance imaging (MRI) brain shows acute infarct in the right parieto-occipital region and chronic infarct in the left high parietal region. Magnetic resonance angiography (MRA) neck with a normal study. The diagnosis of PV was confirmed by positive JAK2 V617F mutation, low erythropoietin level, and persistent elevation of all cell lines.

Conclusion: Polycythemia vera (PV) is a primary chronic myeloproliferative neoplasm causing elevation of leucocytes, hemoglobin, hematocrit, and platelets. This patient met both major and minor criteria. The JAK2 mutation is present in 95% of PV. Recurrent strokes are not uncommon in patients with polycythemia. Elevated blood viscosity has been proposed as a mechanism for stroke in patients with PV.

A Case of Polycythemia Vera with Hyperhomocysteinemia Presented with Ischemic Heart Disease And Cerebral Venous Sinus ThrombosiS

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Introduction: Although red blood cells actively metabolize methionine to homocysteine, it is unlikely that hyperhomocysteinemia leads to increased thrombotic risk in polycythemic patients. Mostly, it is recognized by incidental hematological findings. This condition leads to hyperviscosity of blood and thrombosis. Cerebral venous sinus thrombosis is a rare presentation of polycythemia vera in clinical practice.

Case description: Here is a 37-year-old male patient, a known case of Ischemic heart disease and type 2 diabetes mellitus, who presented with convulsions, altered sensorium, and right-sided weakness. On investigation, computed tomography (CT) brain and magnetic resonance imaging (MRI) brain with venography showed acute cerebral venous sinus thrombosis with intraparenchymal hemorrhage. Blood reports showed raised hemoglobin, hematocrit, red cell mass, homocysteine levels, and low erythropoietin level. The patient was treated with anticoagulants, antiplatelets, methylcobalamin, anticonvulsants, and phlebotomy, and improved.

Conclusion: Among the presentations of polycythemia vera, thrombosis has its own mortality and morbidity risk. Both arterial and venous thrombotic events can be seen. An effective diagnosis and treatment will improve clinical outcomes.

Macrocytosis and Vitamin B12 Deficiency—a Relationship on Thin Ice: a Retrospective Study Done in Tertiary Care Center

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Introduction: Vitamin B12 anemia has macrocytic with hypersegmented neutrophils picture. High mean corpuscular volume and mean corpuscular hemoglobin are characteristic of this type of anemia. Serum vitamin B12 is an underrated test being done in most parts of our country. Due to the predominance of iron deficiency anemia in our Indian population and lack of clinical awareness, clinicians tend to skip this deficiency because of the absence of macrocytosis. This may lead to unnecessary treatment delay and can lead to neurological complications.

Aims and objectives: To find out the incidence of vitamin B12 deficiency in microcytic hypochromic anemia.

Methodology: It is a retrospective cross-sectional study focusses on male patients with vitamin B12 deficiency admitted between January 2022 and July 2023 in the medicine department.

Results: A total of 40 patients with vitamin B12 deficiency were analyzed, out of which a total of nine patients had microcytic hypochromic anemia. Mean hemoglobin: 8.2 gm/dL, mean corpuscular volume: 69.6 fl, mean corpuscular hemoglobin: 21.5 pg, and mean corpuscular hemoglobin concentration: 30.8 gm/dL. These patients were compared with iron profile, which showed a mean iron of 38.0 µg/dL and a mean transferrin saturation of 14.3%. Two out of nine cases had a normal iron profile with a microcytic hypochromic picture in vitamin B12 deficiency.

Conclusion: Due to microcytosis, clinicians are deceived into believing it to be iron deficiency anemia and tend to ignore B12 deficiency. However, due to its great relevance in the patient's hemogram, hemodynamics, and clinical status correction, vitamin B12 deficiency is need of the hour. This study also gives a wider view of not skipping the vitamin B12 test in the microcytic hypochromic picture. To prove the theory, a larger sample size with more follow-up is required.

A Case Series on Aplastic Anemia Management: Exploring the Role of Immunosuppressive Therapy in a Nontransplant Center

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Introduction: Aplastic anemia (AA) is a rare condition characterized by a combination of hypoplasia or aplasia of the bone marrow and pancytopenia in at least two of the main cell lines: red blood cells (RBCs), white blood cells (WBCs), and platelets. AA is three times more common in Asia than in the West; this may be due to viral infections and exposure to toxins. Combined immunosuppressive therapy with antithymocyte globulin (ATG), cyclosporin A (CSA), and steroids is now approved as a treatment of choice for AA in the absence of feasibility of an allogenic bone marrow transplant in young adults (<40 years of age). While ATG is administered as an intravenous infusion over 5 days in hospitalized patients, patients receive CSA orally for 6 months or more. The 6-month response rate of the first course of ATG is around 70%. In this case series, we present four cases of severe idiopathic AA with good responses to combined immunosuppressive therapy.

Case 1: A 30-year-old male presented with severe anemia and intermittent epistaxis. Hematological parameters show severe pancytopenia with low reticulocyte count. Bone marrow biopsy showed markedly hypocellular marrow (10–15% cellularity). The patient has been following up in the hematology clinic for 8 months.

Case 2: A 28-year-old female presented with easy fatiguability, easy bruising, and anasarca. Hematological parameters are suggestive of severe pancytopenia with low reticulocyte count. In bone marrow aspiration and imprint, no particles were seen. Bone marrow biopsy showed fibro collagenous with no bony trabeculae. The patient has been following up for 5 years.

Case 3: A 38-year-old male presented with complaints of severe anemia and lower limb swelling. Hematological parameters showed pancytopenia with low reticulocyte count. Bone marrow aspiration and biopsy report were suggestive of hypocellular for age. The patient has been following up for 4 years.

Case 4: A 19-year-old male presented with easy fatiguability for 2 weeks. Hematological parameters showed pancytopenia with low reticulocyte count. Bone marrow aspiration showed hypocellular marrow. The patient has been following up for 3 years.

All these patients were successfully treated with immunosuppressive therapy (ATG), CSA, and prednisolone. Their hematological parameters were improved on regular follow-up.

Discussion: All these patients with no significant past medical history presented with symptoms of easy fatigability or bleeding manifestations. On laboratory evaluation, low hemoglobin levels, leucopenia, neutropenia, and low reticulocyte count showed their RBC and WBC production is profoundly impaired. Human immunodeficiency virus, hepatitis B, ebola virus, TORCH, and venereal disease research laboratory serology were negative. B12, thyroid profile was within normal limit, and antinuclear antibody was negative. There was no evidence of hemolysis. Ultrasonography of the abdomen was normal. Paroxysmal nocturnal hemoglobinuria was negative. The bone marrow aspiration and biopsy ruled out other causes.

These patients' laboratory values met with severe AA: bone marrow hypocellularity <30%, absolute reticulocyte count <60 × 109/L, absolute neutrophil count of <0.5 × 109/L or platelets <20 × 109/L, they did not have human leukocyte antigen (HLA) matching donor and access to hematopoietic stem cell transplantation. Therefore, they are given immunosuppressive therapy (IST) with ATG, CSA, and prednisolone. When untreated, the mortality rate is approximately 60–70% within 2 years of diagnosis. Studies showed an overall survival rate of 80% and a response rate of 77% in 100 patients treated with cyclosporin, ATG, and prednisolone. Younger age, high absolute reticulocyte and lymphocyte counts, and mutation in the *PIGA*, *BCOR*, or *BCORL1* are the factors that predict better response to IST, according to some studies.

A total of six patients were given combined immunosuppressive therapy in our hospital, of which two patients expired, and four patients were successfully treated with IST and are treatment and transfusion-independent. However, rates of relapse and clonal evolution of myelodysplastic syndrome are higher with IST. Sperm and oocyte banking should be considered while giving IST to young adults.

Actuarial 10-year survival of patients receiving first-line IST or bone marrow transplantation from an HLA identical sibling, stratified data as shown later with significant improvement seen in both groups.

Conclusion: In this case series, we emphasize the evaluation of all cases of pancytopenia for aplastic anemia. In the absence of a facility for bone marrow transplantation and nonavailability of HLA matching donor, combined immunosuppressive therapy is preferred as first-line therapy in idiopathic severe aplastic anemia in young adults as long term survival of severe aplastic anemia was equivalent after ATG therapy or bone marrow transplant.

Clinical Profile of Pancytopenia Patients in a Tertiary Care Hospital

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Introduction: Pancytopenia is the decrease in all three lineages of blood cells: RBCs, WBCs, and platelets. Various causes include deficiencies of vitamin b12, folate, iron, drug-induced BM suppression, infections, leukemia, multiple myeloma, MDS, and hemolysis. The underlying cause of pancytopenia should be diagnosed for the management of pancytopenia.

Objectives: To study clinical and hematological parameters in patients with pancytopenia and its response to treatment.

Materials and methods: Sample size—37; study type—retrospective study; study period—July 2022–2023.

Study area: Hindu Mission Hospital, Tambaram

Observations: In this study, out of 37 subjects, 19 were males, and 18 were females. The age distribution was 22–78 years with a mean age of 52.6, the majority in the 61–70 years age group. The most seen symptoms were generalized tiredness (25), followed by decreased appetite (11), fever (nine), breathlessness on exertion (eight), and bleeding manifestations (six) [petechial rash (three)]. The most common sign was pallor (30), followed by splenomegaly (10) and pedal edema (six). Most of the patients (14) had Hb within 3–5 gm%. Most of the patients (15) had platelets <50000. Serum vitamin B12 (13), iron (seven), and folate (four) were reduced in patients. Hypercellular marrow (24) and erythroid hyperplasia (24) were the most common bone marrow aspirate findings. Patients were treated with iron, folic acid, and vitamin B12 supplements. A number of 22, 12, and 3 patients received packed cell, platelet, and FFP transfusions, respectively.

Conclusion: Megaloblastic anemia (13) and dimorphic anemia secondary to nutritional deficiency (five) were the first and second most prevalent causes, respectively; others were hemolytic anemia (three), myelodysplastic syndromes, acquired pure red cell aplasia, Evan's syndrome, acute myeloid leukemia, all, atypical hemolytic uremic syndrome, macrophage activation syndrome, drug-induced bm

suppression, multiple myeloma, sepsis, aplastic anemia. Most of the patients responded well to therapy, while two patients succumbed to the disease. Early diagnosis and treatment of the underlying cause of pancytopenia help in reducing mortality and morbidity to a great extent.

Prevalence of Microalbuminuria Among Sickle Cell Disease Patients

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Introduction: Sickle cell disease (SCD) is an autosomal recessive disorder caused by a point mutation in the β-globin chain of hemoglobin. SCD patients often experience a range of complications, including nephropathy. One of the early indicators of nephropathy in SCD patients is microalbuminuria. It is measured by albumin-to-creatinine ratio (ACR) in spot urine samples. ACR 30: 300 mg/gm is considered as microalbuminuria.

Methods: A cross-sectional observational study was conducted among all SCD patients visiting RSDKS, Ambikapur. Demographic data, other medical records, and drug history were reviewed. Urine samples were collected and analyzed for urine ACR using standard laboratory techniques.

Results: The prevalence of microalbuminuria was 30.2% among SCD patients. ACR ranged from 8 to 290 mg/gm with a mean of 63.49 ± 15.841 (±24.95%). History of hydroxyurea use was significantly associated with ACR of <30 mg/gm (Table 1).

Table 1: Results

S. no.	*Variables*		*n = 96 (%)*	*ACR*		*p-value (<0.05)*
				>30 mg/gm	*< 30 mg/gm*	
1.	Sex	Male	58 (60.4%)	19 (32.7%)	39 (67.2%)	0.501
		Female	38 (39.6%)	10 (26.3%)	28 (73.7%)	
2.	Age	15–20 years	31 (32.3%)	10 (32.2%)	21 (67.8%)	0.954
		20–25 years	27 (28.1%)	8 (29.6%)	19 (70.4%)	
		>25 years	38 (39.6%)	11 (28.9%)	27 (71.0%)	
3.	Hydroxyurea use	Yes	31 (48.9%)	4	27	0.011
		No	65 (51%)	25	40	
		Total		29 (30.2%)	67 (69.8%)	

Conclusion: Microalbuminuria is an early predictor of nephropathy and has evidently a higher prevalence among sickle cell disease (SCD) patients. The effectiveness of hydroxyurea in preventing nephropathy has been again proved. However, this study is limited by a small sample size, lack of renal profile, and clinical parameters. Hence, screening for microalbuminuria should be routinely done in asymptomatic SCD patients.

Blame the Age, or is there More Than What Meets the Eye?

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Introduction: Anemia is defined by a reduction in one or more major RBC measurements, including hemoglobin, hematocrit, or RBCs. Major causes in the elderly include nutritional deficiency and anemia of chronic disease/inflammation.

Objective: To analyze the clinicopathological presentation of anemia in the elderly.

Methodology: A total of 40 elderly patients of age above 65 years were studied retrospectively over a period of 6 months. They were admitted to the hospital and evaluated for anemia or were found to be anemic incidentally.

No. of patients	*Diagnosis*	*Patient profile*	*Severity of anemia*
22	Anemia of chronic disease	Male: 11, female: 11	Mild: 3, moderate: 16, severe: 3
16	Iron deficiency anemia	Male: 7, female: 9	Mild: 2, moderate: 6, severe: 6, life-threatening: 2
1	Vitamin B12 deficiency	Male: 1	Life-threatening: 1
1	Myelodysplastic syndrome	Male: 1	Life-threatening: 1

Observation: It was found that 55% of all patients had anemia of chronic disease, 40% had iron deficiency anemia, and 0.02 each had vitamin B12 deficiency and myelodysplastic syndrome.

Among them, 12 were found to have severe anemia, out of which four were found with hemoglobin levels <6.5, requiring transfusions.

Disease prevalence of patients with anemia of chronic disease was chronic kidney diseases, heart failure, and COPD majorly.

Conclusion: The prevalence of anemia increases with age, but it should not be considered the only cause in the elderly. Categorical causes of anemia vary in different age groups and should be evaluated for each. Anemia is known to cause worsening of chronic conditions like heart failure in the elderly; hence, evaluation and appropriate treatment should be considered at the earliest as a part of geriatric workup.

Hemolytic Anemia Associated with Vitamin B12 Deficiency: A Comprehensive Case Series and Clinical Insights

Lovy Aggarwal

Vitamin B12 deficiency is a complex disorder with a prevalence of at least 47% in India. This condition has various contributing factors and presents with a wide array of manifestations ranging from hematological, neurological, and cardiovascular complications. One particularly intriguing aspect is the association with hemolytic anemia. The prevalence of hemolytic anemia in patients with vitamin B12 deficiency is about 1.5%. This case series explores seven cases of hemolytic anemia due to vitamin B12 deficiency with different presentations and etiologies.

Material: A retrospective study wherein data were collected from patients attending tertiary care hospitals from April 2022 to June 2023. The data included history (clinical features, diet, drug intake), physical examination (general and systemic examination), laboratory investigations (hemoglobin, LDH, haptoglobin, liver function test, peripheral blood smear, and other specific tests), treatment, and follow-up tests.

Observations: Among 188 cases of cobalamin deficiency, seven exhibited hemolytic anemia. Typically, these patients presented with generalized weakness, fatigue, pallor, and occasionally icterus. After excluding other causes of hemolysis, vitamin B12 deficiency was identified as the underlying factor for hemolytic anemia. Further testing was done to ascertain the cause of vitamin B12 deficiency. The hospital stay for these individuals was prolonged. Treating the etiology and administration of vitamin B12 injections resulted in significant symptom alleviation and improvement in laboratory parameters within 1–2 months. The reasons for vitamin B12 deficiency encompass reduced dietary intake, pernicious anemia, and atrophic gastritis, among others.

Conclusion: Hemolytic anemia due to vitamin B12 deficiency is uncommon and not well described. Therefore, high clinical suspicion is needed to promote timely diagnosis and therapeutic intervention.

Hemophagocytic Lymphohistiocytosis as the Primary and Solitary Clinical Manifestation of Hodgkin's Disease

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Hemophagocytic lymphohistiocytosis (HLH) is a life-threatening disorder responsible for extensive phagocytosis of hematopoietic cells and a multisystem organ failure. It is now well recognized that HLH is occasionally associated with lymphomas, the most common being T or natural killer (NK) cell types. However, its association with Hodgkin's disease has rarely been reported.

We report a case of a 15-year-old female with HLH as the initial manifestation of Hodgin's disease, illustrating the diagnostic difficulties and the interest in rapid treatment.

Case: She presented with a history of high-grade fever, anorexia, and significant weight loss over 2 months. Clinical examination showed hepatosplenomegaly without any lymphadenopathy. Laboratory examination revealed pancytopenia with abnormal liver function tests, hyperferritinemia, and hypertriglyceridemia. The bone marrow aspiration showed the presence of numerous macrophages with hemophagocytosis without any evidence of malignancy. The diagnosis of HLH secondary to infectious disease was initially considered. In spite of extensive surveys, including various cultures, serological tests for viruses and collagen disorders, and abdominal and chest computed tomography, the origin of the disease was not found. She was given intravenous antibiotics along with a steroid pulse. She failed to improve, and a trial of empirical antitubercular therapy was started. Reevaluation of the bone marrow specimen revealed the infiltration of small numbers of clusters of differentiation 15+ and 30+ cells with background reactive cells. She was planned for chemotherapy in view of bone marrow infiltration by Hodgkin's disease.

Conclusion: A diagnostic survey to rule out underlying lymphoma should be vigorously performed for patients with HLH of unknown origin. However, in some cases, the scarcity of the tumor burden makes the diagnosis difficult.

Hepatology

INFLAMMATORY MARKERS (ESR, CRP, NLR, AND FERRITIN) AND THEIR CORRELATION TO CHILD–PUGH SCORING IN CHRONIC LIVER DISEASE (CLD)

Alipa Sinha

Introduction: The prevalence of cirrhosis has increased by 1.5 to two-fold over the past 2 decades. The existing prognostic indicators of liver disease have the following limitation—two variables (i.e., ascites and hepatic encephalopathy) included in Child–Pugh score are subjective and may be variable according to the physician's judgment and the use of diuretics and lactulose. The primary aim of this study is to identify the inflammatory markers that correlate closely with existing prognostic indicators. The parameters being investigated in this study are C-reactive protein (CRP), the neutrophil-to-lymphocyte ratio (NLR), serum ferritin, and erythrocyte sedimentation rate (ESR).

Materials and methods: The study is a correlational, cross-sectional, observational study conducted at the Department of Medicine, Tata Main Hospital, Jamshedpur, Jharkhand, on patients diagnosed with chronic liver disease (compensated or decompensated) over a period of 12 months, from May 2022 to April 2023 on a sample size of 180, that is, 60 each in Child–Turcotte–Pugh (CTP) classes A, B, and C.

Observations: Out of 180 patients (60 each in CTP classes A, B, and C), The most common age group of subjects was 51–60 years (35.00%), followed by 41–50 years (28.33%). The mean age for all patients in all three CTP classes was 55.42 ± 10.57 years. The most common gender in studied chronic liver disease (CLD) patients was male, with 144 patients (80%). Based on socioeconomic status, most cases were from Kuppuswamy class III, that is, 87 (48.33%), followed by Kuppuswamy class II, that is, 47 (26.11%), respectively. The most common symptom at presentation was generalized weakness, seen in 165 patients (91.67%). The most common clinical sign was ascites, seen in 120 patients (66.67%), followed by icterus in 111 patients (61.67%). Alcoholic liver disease was the most common etiology of CLD, with 96 patients (53.33%), followed by nonalcoholic fatty liver disease, that is, 36 (20.00%). Most patients with hepatic encephalopathy on admission had hepatic encephalopathy (HE) grade I, that is, 15 (55.55%), followed by grade II HE, that is, 5 (18.52%), respectively. On UGI endoscopy, CLD cases showed overlapping findings. Most common finding was portal hypertensive gastropathy, that is, 135 (75%), followed by grade I varices, that is, 63 (35%), respectively. The most common hematological abnormalities were anemia, that is, 166 (92.22%).

Inflammatory marker levels in CTP classes A, B, and C are shown in Table 1.

There is a statistically significant correlation between the inflammatory markers across Child–Pugh classes. Total death among those studied was 44, that is, 24.44%. The highest number of death cases were in CTP class C, that is, 24 (54.54%). A correlation was noted between the levels of inflammatory markers among survivors and deceased patients.

Table 1: Inflammatory marker level in CTP

Variables	*CTP class A*	*CTP class B*	*CTP class C*	*p-value*
ESR (mm/hour)	19.24 ± 04.21	21.14 ± 04.57	22.11 ± 05.24	<0.001
CRP	30.24 ± 05.77	32.14 ± 05.41	36.87 ± 05.88	<0.001
NLR	02.02 ± 00.47	03.12 ± 00.89	05.07 ± 01.25	<0.001
Ferritin (ng/mL)	390.14 ± 30.24	403.12 ± 35.24	445.24 ± 30.18	<0.001

Conclusion: The study showed that ESR, CRP, NLR, and ferritin were useful in the prediction of the severity of liver disease in agreement with the CTP score. So, ESR, CRP, NLR, and ferritin can be used as a marker of the severity of liver disease.

Comparison of Efficacy of Aspartate Aminotransferase Platelet Ratio Index to Fibroscan as a Marker for Early Fibrosis in Nonalcoholic Fatty Liver Disease

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Introduction: Nonalcoholic fatty liver disease (NAFLD) is one of the common causes of chronic liver disease. NAFLD is defined when alcohol consumption is ≤30 gm/day in men and ≤20 gm/day in women, with the exclusion of the other causes of disease such as chronic viral hepatitis, autoimmune hepatitis, steatogenic drug-induced, etc. It comprises a clinical spectrum from steatosis, fatty infiltration plus inflammation, hepatocellular ballooning degeneration (nonalcoholic steatohepatitis), fibrosis, and ultimately cirrhosis. The progression of NAFLD to fibrosis is difficult to monitor. Early and accurate assessment of the degree of liver fibrosis is essential in management and prognosis. Liver biopsy has long been considered the gold standard for the assessment of liver fibrosis. Invasive procedures and noninvasive methods like fibroscan and aspartate aminotransferase platelet ratio index (APRI) are being tried.

Aims and objectives:

- To assess the relation between aspartate aminotransferase and platelet count in patients with precirrhosis.
- To compare the efficacy of the aspartate APRI to that of FibroScan in early fibrosis.

Materials and methods: Source of data—This study includes 100 ultrasound-defined newly diagnosed NAFLD patients attending the outpatient department at Rajendra Institute of Medical Sciences and Rajiv Gandhi University of Health Sciences Super Specialty Hospital, Raichur, with the fulfillment of inclusion criteria and exclusion criteria.

Study design: Hospital-based prospective study.

Results: In this study, the mean aspartate aminotransferase (AST) value was 41.6 IU. 34% of patients have values between 41 and 50 IU, and 20% of patients have >50 IU. The mean platelet count was 123×10^9 cells. APRI was calculated based on these AST and platelet values. A FibroScan was done for those patients and correlated with APRI. The mean APRI score was 1.09. A total of 20 patients with an APRI index between 0.7 and 1.0 had FibroScan scores between 7.0 and 8.9, which denotes mild to moderate fibrosis according to the METAVIR scoring system. There is a statistically significant correlation between APRI and FibroScan in NAFLD pts ($p < 0.001$).

Conclusion: Early and accurate assessment of the degree of liver fibrosis is essential in the management and prevention of progression to cirrhosis in patients with NAFLD. Liver biopsy is the gold standard, but being invasive, much research has been dedicated to evaluating noninvasive methods to determine liver fibrosis. This study focused on the performance of FibroScan as well as APRI to detect liver fibrosis in our hospital. This study shows a significant correlation between APRI and FibroScan in patients with NAFLD. Apart from the cost, the accessibility of FibroScan may be an issue in primary health care and resource-limited settings. APRI is a very cheap, easily available biochemical test in all peripheral health care centers. APRI and FibroScan perform equally well in predicting liver fibrosis. The index is used in resource-limited settings where FibroScan is unavailable.

Association of Renal Resistive Indices with Renal Function Test: Journey Toward New Marker in Predicting Mortality in Decompensated Cirrhotics with Ascites

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Introduction: Ascites in liver cirrhosis indicate increased mortality risk. Renal failure is a predictor of mortality in decompensated cirrhosis. Renal vasoconstriction occurs early in cirrhosis-related renal dysfunction before the rise of serum creatinine. The objective of this study is to determine the utility of renal Doppler in demonstrating changes in renal vasoconstriction in relation to paracentesis and to assess its correlation with renal dysfunction in decompensated cirrhosis.

Methods: This correlational study assessed renal resistive index (RRI) changes in cirrhosis patients with ascites after paracentesis. RRI and renal vein stasis index (RVSI) values were measured using ultrasonogram-Doppler and compared with renal function tests and the model for end-stage liver disease-sodium (MELD-Na) score. Statistical analysis was done using the latest Statistical Package for the Social Sciences software.

Results: The study included 50 cirrhosis patients. The average Child–Turcotte–Pugh score was 11.7, and the MELD-Na score was 20.92. Preparacentesis, mean serum creatinine was 1.05 mg/dL. Mean RRI values were 0.615 (right main renal artery), 0.638 (left main renal artery), 0.603 (right segmental artery), 0.606 (left segmental artery), 0.049 (right renal vein RVSI), and 0.046 (left renal vein RVSI). After paracentesis, serum creatinine decreased ($p < 0.05$), and RRI values improved ($p < 0.05$). Positive correlations were observed between serum creatinine, estimated glomerular filtration rate, MELD-Na scores, and RRI values ($p < 0.05$). MELD-Na score correlated significantly with RRI values and RVSI ($p < 0.05$).

Conclusion: The study shows a significant correlation between RRI, RVSI, and MELD-Na scores in patients with cirrhosis who had normal serum creatinine levels. Renal Doppler can aid in assessing decompensated cirrhosis severity. Paracentesis led to improved renal parameters. More research is needed on renal resistive indices as predictors of mortality in decompensated liver disease.

Evaluating the Role of Noninvasive Markers in Assessing the Prognosis and Mortality in Patients With Decompensated Liver Failure

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Introduction: Cirrhosis is the 14th leading cause of death worldwide. Liver biopsy and hepatic venous pressure gradient application is limited due to the invasive procedures and cost factors. The aim of the study is to identify noninvasive methods of estimating prognosis in patients with decompensated liver failure.

Materials: This is a prospective analytical study where all decompensated cirrhosis cases hospitalized in the Medical and Gastroenterology Department of KIMS from November 2022 to April 2023 are tested for serum markers on days 1 and 7. Patients' models for end-stage liver disease-sodium and Child–Turcotte–Pugh (CTP) were assessed on day 1 and then compared to the serum markers on days 1 and 7 under the ROC curve.

Observations: The mean age is 52 years, with a standard deviation of 13 years. Out of 62 patients, 51 are male patients, which is 82.25% of the total sample. The most common etiology for cirrhosis is ethanol (41%), followed by nonalcoholic steatohepatitis (38%) followed by hepatitis B (9%). The overall 28-day mortality rate is 18/62 (29.03%). Receiver operator characteristic (ROC) curve analysis revealed that mean platelet volume (MPV) at day 7, having a cut-off value of ≥10.15, showed sensitivity of 94% and specificity of 86% to predict mortality. Also, red cell distribution width (RDW) at a day 7 cut-off value of ≥18.45 had a sensitivity of 89% and specificity of 73% with a *p*-value of ≤0.001. Erythrocyte sedimentation rate at day 7, having a cut-off value of ≥24.50, showed a sensitivity of 98% and specificity of 91% to predict mortality. These parameters significantly predicted mortality when compared with the model for end-stage liver disease (MELD) score, which has an area under the receiver operating characteristic curve of 0.745 with a sensitivity of 72%, a specificity of 77%, and a *p*-value of 0.003.

Conclusion: Collection of specimens is easy, noninvasive, or very less invasive, and repeatable.

Red cell distribution width (RDW) and MPV can be used to predict mortality, which has higher sensitivity and specificity and can be used as independent markers or along with CTP and MELD scores in assessing the prognosis of the patient.

In the Quest for Better Diagnostics: APRI, FIB-4, and Fibroscan in Alcoholic Liver Disease

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Introduction: This study aims to compare the performance of aspartate aminotransferase to platelet ratio index (APRI) and fibrosis-4 (Fib-4) with FibroScan (transient elastography) for the assessment of liver fibrosis in alcoholic liver disease (ALD) patients and to find out the diagnostic accuracy of APRI and Fib-4 in assessing liver fibrosis in ALD patients and to identify the optimal cutoff values for distinguishing between different fibrosis stages. By establishing the comparative performance of these methods, this study seeks to aid clinicians in selecting the most appropriate and accurate tool for liver fibrosis evaluation, enabling timely interventions to prevent disease progression and improve patient outcomes in alcoholic liver disease (ALD).

Methodology: This is a prospective, observational study including a series of 50 adult patients (age ≥ 18 years) who are admitted at Dr DY Patil Medical College and Hospital Research Centre, Kolhapur, with a confirmed diagnosis of ALD. The diagnosis will be based on clinical history, laboratory investigations, and imaging studies. Patients with a history of viral hepatitis, nonalcoholic fatty liver disease, hepatocellular carcinoma, or other liver diseases will be excluded from the study. Patient data was collected, including demographics, alcohol consumption history, duration of alcohol use, and laboratory results (aspartate aminotransferase, alanine aminotransferase, platelet count). FibroScan was used as the reference standard for fibrosis evaluation performed by an experienced operator, and the cutoff values for fibrosis stages (F0-F4) were determined. APRI and Fib-4 scores were calculated for each patient based on their routine blood test parameters. Baseline characteristics were matched. Also, mean, median, and standard deviations (SD) were calculated for APRI and Fib-4 scores. A *t*-test was applied to compare their performance with FibroScan.

Observations: In this study of patients with alcoholic liver disease (ALD), the median age was 40.00 years, with the majority falling within the 40–60 age group. All participants were male. The median APRI score was 1.60 (SD ± 0.88), and the median FibroScan value was 17.65 kPa (SD 11.4). The mean Fib-4 score was 4.27 (SD: 1.3). Regarding liver fibrosis staging, the majority of patients had stage F4 fibrosis (42%), followed by stage F3 (24%), stage F1 (10%), stage F0 (5%), and stage F2 (2%). Liver stiffness measurement scores increased with advancing fibrosis stages, ranging from 5.06 ± 0.62 kPa in stage F0 to 20.50 ± 21.76 kPa in stage F4. The duration of alcohol abuse was highest in patients with stage F4, followed by stages F2 and F3. Notably, the mean APRI score was highest in patients with stage F3, followed by stage F1.

Conclusion: In conclusion, this study provides a valuable understanding of the assessment of liver fibrosis in patients with ALD. The use of noninvasive fibrosis assessment tools, including APRI, FibroScan, and Fib-4, offers a promising alternative to invasive liver biopsy. Our findings demonstrate that patients with ALD commonly present with advanced fibrosis (stage F4), highlighting the severity of the disease in this population. Additionally, our observations suggest a potential preference for Fib-4 in identifying severe fibrosis (stage F3) in ALD. These findings may have significant clinical implications, enabling early detection and appropriate management of liver fibrosis to prevent disease progression and improve patient outcomes. Nevertheless, further research and validation are essential to solidify the clinical utility of these noninvasive methods, ensuring their effective integration into the routine evaluation and care of patients with ALD.

Association Between Fatty Liver Diseases and Type II Diabetes Mellitus: Results of Nationwide Survey among ~ 750 Physicians

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Introduction: Metabolic disorders are commonly observed in patients with chronic liver diseases, and there is frequent co-existence between nonalcoholic fatty liver disease (NAFLD) and type II diabetes mellitus (T2DM). The link between NAFLD and T2DM is more complex, and evidence suggests that NAFLD is associated with a nearly two-fold higher risk of developing T2DM, irrespective of obesity and other common metabolic risk factors.

Materials: Considering these facts, this nationwide structured questionnaire-based survey was conducted through an online platform (EnSight–Imagica Health) to understand the burden of liver diseases in type II diabetes patients.

Observations: Overall, 747 physicians completed this survey between March and July 2022. Approximately 67% of physicians reported that up to 50% of their patients with T2DM have coexisting NAFLD. In the majority of these patients or suspected patients with liver diseases, clinicians advised liver function tests or ultrasound to confirm the diagnosis. Other common comorbid conditions reported in T2DM patients with liver diseases are namely metabolic syndrome (49%), dyslipidemia (26%), and hypertension (22%). Overall, 65% of physicians stated that oxidative stress has a definitive role in NAFLD pathogenesis. Ursodeoxycholic acid, astaxanthin + glutathione, and pioglitazone were the preferred choice of therapy in T2DM patients with NAFLD with or without hypertriglyceridemia.

Conclusion: This nationwide survey concluded that the risk of fatty liver diseases is high in T2DM patients, and suspected patients should be screened regularly (ultrasound/liver function tests) to rule out NAFLD associated with diabetes.

The Relevance of Ascitic Lactate Dehydrogenase and Serum Ascitic Albumin Gradient in the Differential Diagnosis of Ascites

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Introduction: The causes of ascites include diseases associated with sinusoidal portal hypertension (cirrhosis, acute alcoholic hepatitis, fulminant or subacute viral hepatitis, congestive heart failure, constrictive pericarditis, inferior vena cava obstruction).

Ascites can also be formed as a consequence of primary peritoneal disease or as a result of peritoneal involvement in systemic processes, such as tuberculous, fungal, parasitic, and granulomatous peritonitis, primary or metastatic peritoneal tumors and vasculitis.

Materials: This study was conducted in the Medicine and Biochemistry Departments of a teaching hospital in Muzaffarnagar. After obtaining informed consent from the patient/attendant, a questionnaire was made regarding the patient's symptoms. After taking aseptic precautions, patients with large-volume ascites can be successfully tapped in the supine position. In order to prevent leakage of fluid after the needle is withdrawn, the needle is inserted using a Z-tract. This is a standard protocol from the Department of General Medicine that is usually followed by almost all patients in the hospital.

Observations: A total of 100 patients were recruited for the study. A total of 65 males and 35 females. The mean age for both sexes was 59.03 ± 13.54 years. Using the receiver operator characteristic curve, cutoff levels were 11.5 for serum ascitic albumin gradient (SAAG) and 310 IU/l for lactate dehydrogenase (LDH). These cutoffs divided the malignant from the nonmalignant group. Higher levels of ascitic LDH were seen in the malignant group (900.67 ± 918.45 IU/L) when compared to the nonmalignant group (199.29 ± 194.53 IU/L). This was statistically significant ($p < 0.05$). The diagnostic accuracy of LDH was 90.7%. SAAG was lower in the malignant (6.74 ± 4.84 g/L) group when compared to the nonmalignant (13.56 ± 7.50 gm/L). This was also statistically significant ($p < 0.05$). The diagnostic accuracy of SAAG was 73.3%.

Conclusion: It was concluded that measurement of ascitic fluid LDH and SAAG were relevant in differentiating malignant from non-malignant ascites. Routine analysis of SAAG and LDH will resolve the problem of malignant and non-malignant ascites, especially in low-resource areas.

A Rare Case of Autoimmune Hepatitis Masquerading as Hemolytic Anaemia

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Introduction: Autoimmune hepatitis, formerly known as lupoid hepatitis, plasma cell hepatitis, or autoimmune chronic active hepatitis, is a chronic, autoimmune disease of the liver that occurs when the body's immune system attacks liver cells, causing the liver to be inflamed. Common initial symptoms may include fatigue, nausea, muscle aches, weight loss, or signs of acute liver inflammation, including fever, jaundice, and right upper quadrant abdominal pain. Individuals with autoimmune hepatitis often have no initial symptoms, and the disease may be detected by abnormal liver function tests and increased protein levels during routine bloodwork.

Case report: A 23-year-old male patient presented with complaints of abdominal distention and B/L pitting pedal edema for 3 months. There was no associated history of hematemesis or melena. The patient had no comorbidities like diabetes mellitus/hypertension/hypothyroidism.

The patient had a history of repetitive transfusions in the last 3–4 years, with a history of four transfusions in the last 6 months. There is no history of complaints similar to those of the family, with the patient being born out of a nonconsanguineous marriage.

On examination, pallor, icterus, clubbing, and bilateral pitting pedal edema were present. JVP was raised. There was no lymphadenopathy. Gastrointestinal examination revealed a distended abdomen with splenomegaly.

Work-up: The 1st-day investigation reports came out to be—hemoglobin (Hb): 5.1 gm/dL, total red blood cell (RBC) count: 2.59 × 106/μL, mean corpuscular volume: 62.5, hematocrit: 16.2%, red cell distribution width: 25.2%, and total platelet count: 3.4 lacs. Serum lactate dehydrogenase was 103 (normal) with a reticulocyte count of 2.51% (corrected: 0.8%). Liver function test showed serum bilirubin (total/direct): 5.9/5.38, serum albumin: 2.02, alkaline phosphatase: 292, and OT/PT: 25/6.

PS comment: Microcytic hypochromic anemia and fragmented RBCs with neutrophilic leukocytosis and normal platelets. Viral markers: negative (human immunodeficiency virus, hepatitis B, hepatitis C), and erythrocyte sedimentation rate of 140 mm in the 1st hour. Iron profile and urine routine microscopy were within normal limits.

At this time, after sending samples for Hb-electrophoresis and direct coombs test (DCT), 1 unit of packed RBC was transfused. The next day, DCT came out positive, but an ultrasonography of the abdomen showed features suggestive of chronic liver disease with a dilated portal vein and gross splenomegaly with multiple collaterals. The patient had no history of alcohol consumption. For further evaluation, an ophthalmology consultation was done, which showed a normal ophthalmological examination and no KF ring. Serum ceruloplasmin levels were normal (38 mg/dL). Antinuclear antibody (ANA) titer came out to be 3+, a fine-speckled pattern. Upper gastrointestinal endoscopy showed antral erosions with portal duodenopathy.

After this, the ANA profile, autoimmune liver profile, and serum total immunoglobulin G levels were sent. The Hb—electrophoresis report came out to be normal (HbA: 92%, HbA2: 3%). One more unit of PRBC was transfused to the patient and was started on injection of human albumin (20%) as pedal edema was not subsiding in spite of giving diuretics.

Later on, the patient was planned for a liver biopsy but was given vitamin K first as prothrombin time (PT)/international normalized ratio (INR) was deranged. After the correction of PT/INR, a liver biopsy was done. ANA profile came out to be negative, but the autoimmune liver profile showed 1+ for AMA-M2, 1+ for LKM-1, and 1+ for LC-1 antibodies. Total immunoglobulin G levels also came out to be raised = 3 8.6 gm/L (normal value: 7–16 gm/L).

After consulting with a gastroenterologist, the patient was started on oral prednisolone 40 mg and was discharged on oral prednisolone with a pending biopsy report, and an outpatient department (OPD) follow-up visit was advised after 10 days. The patient was discharged with a diagnosis of probable autoimmune hepatitis with autoimmune hemolytic anemia.

When the patient revisited OPD after 10 days, the patient was stable with reduced edema and Hb of 9 gm/dL and had no fragmented RBCs on PS comment and decreased serum bilirubin (total = 3.8 mg/dL). A biopsy report was collected, which showed dilated sinusoids in the centrilobular as well as periportal zone with moderate fibrosis and bridging fibrosis indicative of autoimmune hepatitis.

This confirmed the patient to be having autoimmune hepatitis. Now, the patient is on regular OPD follow-up, currently on azathioprine 50 mg twice daily and oral prednisolone 5 mg once daily. The patient is asymptomatic for now, maintaining Hb above 9 gm/dL.

Coagulation Profile and its Correlation with Severity of Liver Dysfunction in Patients with Chronic Liver Disease

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Introduction: Chronic liver disease (CLD) is a disease of the liver which lasts for over a period of 6 months. A common complication of CLD is portal hypertension, which leads to hemodynamic changes that may affect endothelial integrity and function.

Changes in clotting function associated with CLD are mostly assessed by the prolongation of first-line tests for clotting, such as the prothrombin time (PT). The extent of derangement in PT correlates with the severity of the liver failure and is one of the constant parameters in widely used prognostic indices such as Child–Pugh (CP) score.

The coagulopathy pattern in liver disease encompasses procoagulant as well as anticoagulation tendencies. The objective of this study was to evaluate coagulation abnormalities with CLDs.

Materials and methods: In this hospital-based study, we enrolled a total of 40 patients aged >14 years suffering from liver disease for >6 months. We excluded patients on long-term treatment with drugs that cause changes in the coagulation parameters, for example, oral contraceptives, aspirin, heparin, warfarin, etc., and those with a previous history of coagulation disorders. The coagulation tests PT, activated partial thromboplastin time (aPTT), and platelet count liver function tests were performed, the CP scores were calculated for all patients, and the results were evaluated in groups.

Observation: Prothrombin time (PT) and aPTT values were significantly higher ($p \leq 0.001$ for each) as the CTP class progressed from A to C; that is, most CTP class C patients showed markedly prolonged values of both PT and aPTT. There is significant thrombocytopenia in 46% of patients with liver disease.

Conclusion: The study of coagulation profiles can help assess hepatic cell function and detect cellular injury, thus preventing patients from landing in life-threatening bleeding complications. These parameters demonstrating positive correlation can be used to develop a new scoring system just like CTP scoring for the assessment of the severity of liver disease.

Role of Indian Diabetic Risk Score (IDRS) in Predicting Nonalcoholic Fatty Liver Disease (Nfald) in Non-Diabetic Population

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Introduction: Nonalcoholic fatty liver disease (NAFLD) is the most common chronic liver disease in many parts of the world. In developing countries, imaging or liver function tests are expensive. Hence, there is a need to develop a simple and inexpensive screening tool to identify individuals who may be at high risk of having NAFLD. The present study was undertaken to see whether the Indian Diabetes Risk Score (IDRS) can predict the development of NAFLD in nondiabetic individuals.

Materials and methods: Nondiabetic outpatients and inpatients, numbering 139 from the PES Institute of Medical Sciences and Research, Kuppam, were enrolled in this cross-sectional study. Biochemical values and anthropometric measurements were obtained using standardized procedures. NAFLD was diagnosed by ultrasonography. The collected data was analyzed using SPSS version 21. Differences between the risk groups of IDRS were studied using the ANOVA test. Then, stepwise logistic regression analysis was performed by introducing these factors one by one into this model, and a p-value of <0.05 was taken as statistically significant.

Results: The prevalence of NAFLD was 33.81% (47/139 participants). It was significantly higher among those with a high IDRS (54.93%) group. The analysis revealed that serum albumin, AST levels, and IDRS remained significantly associated with NAFLD in this study.

Conclusion: The Indian Diabetes Risk Score (IDRS) can be used as a screening tool among nondiabetic individuals at high risk for NAFLD.

Coexistence of Autoimmune Hepatitis and Wilson's Disease, a Clinical Dilemma

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Background: Wilson's disease and autoimmune hepatitis are considered common causes of acute and chronic hepatitis. However, the coexistence of these diseases in one patient is rare.

Case: A 26-year-old female presented with a history of yellowish discoloration of her eyes for 10 days. She reported no fever or consumption of alcohol. Laboratory tests revealed increased levels of serum aspartate aminotransferase (AST) and alanine aminotransferase (ALT) (AST > ALT) with normal values of cholestatic parameters, albumin and prothrombin time. Testing for viral hepatitis was negative. Globulins and serum immunoglobulin G were elevated. Her antinuclear antibody was positive with a titer of 1:320 (nuclear-speckled pattern), with anti-Ro and La being strongly positive. A diagnosis of autoimmune hepatitis (AIH) was made, and she was started on treatment with prednisolone. Her transaminases settled down while she continued to deteriorate. Further testing showed that her ceruloplasmin was low and 24-hour urinary copper was elevated, thereby suggesting Wilson's disease. She was started on trientine while steroids were continued.

Conclusion: The etiologic diagnosis of acute hepatitis and the correct therapeutic strategy may present several difficulties. Wilson's Disease (WD) and AIH should always be in the differential of nonviral acute liver failure. In patients diagnosed with AIH, a thorough screening for WD is necessary, particularly when the response to steroid therapy is poor. In case of overlapping features, combination therapy may be of benefit.

Study of Serum Sodium Levels And its Clinical Significance in Decompensated Chronic Liver Disease Patients Admitted in a Tertiary Care Center of North Eastern State, Tripura

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Introduction: Decompensated chronic liver disease is associated with disturbances in the regulation of water balance, leading to abnormalities in serum sodium. Various studies have established a correlation between serum sodium levels and survival in these patients. Dilutional hyponatremia due to impaired free water clearance is the most common dysnatremia, while hypernatremia due to cathartic use has also been reported in a few studies. The aim of this study was to study the serum sodium levels in patients with decompensated chronic liver disease (DCLD) and to establish its significance.

Materials and Methods: Data were collected from 100 patients admitted to medical wards. Patients were divided into groups based on serum sodium levels, and the relevant parameters were analyzed among the groups.

Observations: Among 100 patients, 45 had serum sodium levels ≥136 mEq/L, while 32 had serum sodium levels between 131 and 135 mEq/L. A total of 23 patients had serum sodium levels ≤130. No patients had serum sodium levels greater than 145. Serum sodium levels were associated strongly with the severity of liver disease as assessed by Child–Pugh and the model for end-stage liver disease (MELD) score. Serum sodium ≤130 indicated the existence of hepatic encephalopathy, hepatorenal syndrome, and spontaneous bacterial peritonitis. Patients with serum sodium <130 mEq/L had an increased frequency of complications than those with ≥136 mEq/L. Patients with serum sodium levels ≤130 had increased mortality.

Conclusion: Hyponatremia is more common in DCLD, and low serum sodium levels are associated with an increased frequency of complications such as hepatic encephalopathy, hepatorenal syndrome, spontaneous bacterial peritonitis, and gastrointestinal bleeding. Lower serum sodium levels were associated with increased MELD and Child–Pugh score and mortality, indicating the inverse relationship between serum sodium levels and the severity of the disease.

Assessing Resistance: Role of Renal Resistive Index In Liver Cirrhosis

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Introduction: Cirrhosis of the liver is a leading cause of liver-related morbidity and mortality worldwide. The disease course is further altered by the development of numerous complications like varices, hepatic encephalopathy, coagulopathy, hepatopulmonary syndrome, cirrhotic cardiomyopathy, and hepatorenal syndrome (HRS). Among the various complications, the development of HRS has a devastating course and outcome in cirrhotic patients. HRS is usually an extended spectrum of prerenal azotemia and, therefore, is potentially reversible. Usually, HRS can be diagnosed only after the rise in blood urea nitrogen and creatinine. By then, the disease has progressed that it is no longer reversible and has a poor outcome. But the disease can be predicted in advance by the estimation of renal resistive index that increases before a considerable period of time by Doppler ultrasound, and so measures can be implemented to prevent the disease progression by avoiding the excess use of diuretics, nephrotoxic drugs, and avoiding large volume paracentesis, etc.

Materials: Source of data—patients admitted to ESIC Medical College Sanathnagar, fulfilling the inclusion and exclusion criteria, were included in the study group. A total of 30 such patients were taken. Study design—hospital-based observational study.

Study duration: 3 months (June to August 2023)

Inclusion criteria: Proven cases of cirrhosis of the liver by clinical, laboratory, and sonographic evidence with normal renal functions.

Exclusion criteria: Known kidney disease, overt HRS, gastrointestinal bleeding, and spontaneous bacterial peritonitis.

Observation: In our study, the renal resistive index was >0.7 for 21 patients and <0.7 for nine patients.

Conclusion: Intrarenal resistive index was >0.7 in the majority of the patients with cirrhosis.

The renal resistive index (RRI) values were higher in patients with severe ascites than in patients with mild to moderate ascites.

A significant correlation was seen between the severity of liver disease and the RRI.

Serum creatinine was normal in patients having significantly high RRI, thus indicating that serum creatinine is a poor predictor of the development of HRS and underestimates renal dysfunction.

To Study the Efficacy of Noninvasive Liver Fibrosis Indexes in Predicting Portal Hypertension Among Chronic Liver Disease Subjects

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Introduction: The most prevalent cause of portal hypertension (PH) is liver cirrhosis, which can lead to serious consequences such as esophageal varices (EV), ascites, and decompensation. Most of the morbidity and mortality in patients with chronic liver illnesses are caused by PH and its consequences. According to research, early detection of PH is critical for timely treatment. The hepatic venous pressure gradient (HVPG) is currently considered the gold standard for PH assessment and is the most important predictor of PH problems in cirrhotic individuals. HVPG measurement, on the other hand, is an intrusive operation that necessitates technological knowledge, which is only available in a few centers. As a result, there is an urgent need for simple and convenient noninvasive alternatives. Among the noninvasive alternative methods, serum markers are simple and easily evaluated in the clinic.

Recently, various serum fibrosis markers have been explored as predictors of EV. However, the diagnostic efficacy of these liver fibrosis indexes in predicting PH in patients with cirrhosis has been poorly evaluated thus far. Therefore, based on the concept that PH is mainly attributed to increased vascular resistance caused by hepatic fibrosis, we speculated that serum liver fibrosis indexes may also be used as surrogate markers of PH. In this study, we evaluated serum markers that are easily measured in clinical practice and compared the diagnostic performance of a series of recently proposed noninvasive fibrosis indexes as a new predictor of PH in patients with Chronic liver disease and an alternative to HVPG measurement.

Objectives: To study the efficacy of a noninvasive liver fibrosis index in predicting PH among chronic liver disease subjects in a tertiary care center in Mysuru.

Materials and methods: Source—all admitted patients with chronic liver disease from JUNE 2023 to SEPTEMBER 2023 in a tertiary care hospital. A total of 32 cirrhotic patients were taken for relevant serum tests to analyze the variables associated with PH grade. Then, the diagnostic performances of four fibrosis indexes, the aspartate aminotransferase (AST)—to-alanine aminotransferase (ALT) ratio (AAR), AST-to-platelet (PLT) ratio index (APRI), fibrosis index (FI) fibrosis-4 (Fib-4), spleen size, were evaluated. In addition, the performances of these fibrosis indexes in different subgroups were investigated. Shapiro–Wilk normality test (or equivalent) and Mann–Whitney *U* test for qualitative and quantitative variables were applied using R version 4.3.1 software.

Results are expressed as mean ± standard deviation. The *p*-value of 0.05 is considered statistically significant.

Observations: A total of 32 patients were eligible for inclusion in the study. Among the included patients, 15 (46.88%) were with PH, and 17 (53.12%) were without PH. Important findings for the four indices are provided in Table 1, and Figure 1 depicts variation in measures of central tendencies with or without PH.

The Mann–Whitney *U* test was performed for each of the parameters between PH and without PH to find the efficacy of the parameter in predicting PH. It was found amongst the four fibrosis indexes, the AAR (*p*-value 0.6917) and PLT ratio index (APRI) (*p*-value 0.1408) were not significantly different, while FI, FIB-4 (*p*-value 0.0141) and spleen size (*p*-value 0.000259) were significantly different between with PH and without PH.

Conclusion: This result indicates that with respect to FIB-4 and spleen size, there is a significant difference between PH and without PH than AAR and APRI indices. Therefore, the effectiveness of fibrosis index (FI) FIB-4 and spleen size parameters may be further evaluated for effective noninvasive fibrosis indices as a new predictor of PH in patients with chronic liver disease and an alternative to HVPG measurement.

HIV

A STUDY ON OUTCOME OF ISONIAZID PREVENTIVE THERAPY FOR TUBERCULOSIS PREVENTION AMONG HUMAN IMMUNODEFICIENCY VIRUS POSITIVE PATIENTS ATTENDING ANTIRETROVIRAL THERAPY CLINICS IN MANGALORE

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Introduction: Human immunodeficiency virus (HIV) is a major cause of infectious deaths all over the world. India accounts for a high number of tuberculosis (TB) cases worldwide, with 20.2 lakh new cases every year. Globally, People living with HIV (PLHIV) were 19 times more likely to contract TB infection than those without HIV (as of 2018). Moreover, the leading cause of death is TB among PLHIV around the world, accounting for nearly 2,51,000 deaths from HIV- associated TB in 2018. In India, 25% of deaths among HIV patients are caused by TB.

Background: The World Health Organization recommends isoniazid preventive therapy (IPT) be given to all PLHIV not currently suffering from tuberculosis in order to reduce the incidence of the same. The objectives of this study were to determine the incidence of PLHIV who contracted TB after receiving 6 months of IPT (followed up for ≥2 years) to determine the incidence of PLHIV who developed tuberculosis when not on IPT.

Methods: A Retrospective cohort study was conducted in the two ART centers of Mangaluru, which included PLHIV who completed 6 months of IPT from January 2017 to May 2018 and were followed up till May 2020 and patients in the comparison group consisting of those attending ART centers during the same period who did not receive IPT. This data was retrieved from the case files of these patients from June to November 2020, entered into MS Excel, and analyzed with SPSS 25.

Results: The study included 1,014 patients, of which 525 (51.8%) received IPT, and 489 (48.2%) did not. Eight (1.5%) patients developed TB after IPT completion compared to 32 (6.5%) patients who developed TB from the non-IPT group. There was a 77% reduction in the incidence of developing TB in those patients who received IPT as compared with those who haven't received IPT (RR of 0.23, *p*-value of 0.0001).

Conclusion: This study indicates that the completion of IPT significantly reduced the TB burden, showing a significant protection against TB for a minimum duration of 2 years. Thus, implementation of IPT should be strengthened, and strict compliance should be ensured to reduce TB infection among PLHIV.

Virological Failure and the Burden of HIV 1 Drug Resistance in Adults and Adolescents Receiving Protease Inhibitor Based Second-Line Antiretroviral Therapy: a 5-Year Indian Cohort Study

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Introduction: Amidst evolving antiretroviral (ART) regimens, queries emerge regarding virological nonsuppression in persons living with HIV (PLH) on second-line ART (2L-ART), particularly relating to viral genetic profiles, susceptibility to ART agents, and the viability of protease inhibitors (PIs).

Methods: In a 5-year retrospective study, 210 Indian PLH aged ≥13 years receiving 2L-ART (dual NRTI + RTV boosted ATV or LPV) subsequent to confirmed virological failure (CVF) after ≥6 months of the first line (1L) ART between July 2015 and May 2018 were evaluated for virological outcomes and emergent drug resistance mutations (DRMs).

Observations: Among 188 PLH, 95.7% (n = 180) achieved nadir viral load (VL) <1000 cp/mL, with 15.6% (n = 28/180) experiencing virological rebound (VL of ≥1000 cp/mL). Overall, 15.9% (n = 30/188) experienced CVF (viral nonsuppression or sustained virological rebound) at some point during the median 59 (interquartile range 42, range 13–58) months follow-up, at a rate of 31.84 failures (95% CI 22.3–45.5) per 1000 person-years. Kaplan-Meier analysis showed cumulative CVF rates of 2.2% (95% CI 0.8–5.7) at 24 months and 16.8% (95% CI 11.5–24.4) at 60 months.

Out of 30 PLH, 80% (n = 24, sequencing failure: n = 1) underwent DRT, revealing pan-susceptibility in 30.4% (n = 7/23) and PI-based 2L-ART in 65.2% (n = 15/23). Notably, LPV and ATZ resistance were found in 21.7% (n = 5/23) and 34.8% (n = 8/23), and cross-resistance to DRV in 13% (n = 3/23). The prevalent PI-DRMs (17.4%, n = 4) included M46L, I50L, I54VTALM, and V82AFTS.

Conclusion: This study underscores the resilience of PIs as effective 2L-ART agents but emphasizes the need for

adherence interventions. Despite remarkably low rates of VF attributable to PI resistance, the emergence of cross-resistance to DRV due to the accumulation of DRM poses a formidable threat.

Figs 1A and B: Virological outcomes and emergent HIV-1 DRMs; (A) Kaplan Meier estimates for time to CVF; CVF was defined as the date of the first of two consecutive VL measurements ≥1000 cp/mL at least 6 months after starting 2L-ART while the patients were receiving ART or within 6 weeks of discontinuation of therapy; (B) Distribution of emergent DRMs to NRTI, NNRTI, and Pis; DRMs were analyzed using Stanford HIV Database Version 9.5 (22nd August 2023), and sequences with penalty scores of ≥30 were considered to define drug resistance for this study

Clinical Outcomes of Isoniazid Preventive Therapy in People Living with HIV Visiting a Tertiary Care Center

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Introduction: Tuberculosis (TB) is the leading and preventable cause of HIV-related mortality and morbidity. Globally, in 2020, people living with HIV (PLHIV) were 18 times more likely to contract tuberculosis and three times more likely to die from it. In India, TB causes 25% of HIV-patient deaths. Isoniazid prevents reactivation and reinfection in TB exposure. Although the World Health Organization recommends a 6-month isoniazid preventive therapy (IPT) for PLHIV, global IPT initiation was slow, with only 42% in 2016.

Material: A retrospective cohort study was conducted at two ART centers with PLHIV completing 6 months of IPT and those not receiving IPT in the comparison group with a 2-year follow-up period. People with active TB, chronic liver/kidney disease, and heavy alcohol users were excluded. Patient data was retrieved and analyzed from case files using MS Excel and Statistical Package for the Social Sciences 25. Analysis was done using descriptive statistics by using the Chi-squared test ($p < 0.05$ for significance).

Observations: The study included 379 patients, with 190 (50.1%) receiving IPT and 189 (49.9%) not. The study population consisted of 217 (57.3%) females and 162 (42.7%) males, with a mean age of 43.22 ± 9.5 years and 197 (51.97%) patients belonging to the lower middle class.

Five (16.1%) patients developed TB after IPT completion, while 26 (83.9%) patients developed TB from the non-IPT group. There was an 81% reduction in the incidence of TB in the IPT group, and this difference was found to be statistically significant.

Conclusion: This study demonstrates that completing IPT significantly lowers TB incidence, providing protection for at least 2 years. IPT is a safe and effective public health intervention. Its implementation should be strengthened, and strict compliance must be ensured.

A Study of Dolutegravir-Based Regimen as Second-Line Antiretroviral Therapy in a Tertiary Care Center in Western Maharashtra

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Introduction: In the DAWNING trial, dolutegravir (DTG) has shown its superiority over Lopinavir-ritonavir and is a suitable option for a second-line regimen. DTG has come up as a potent Integrase Inhibitor which demonstrates potent antiviral activity, a strong genetic barrier to resistance, good short-term tolerability, low pharmacokinetic variability, and a predictable pharmacokinetics/pharmacodynamics relationship, which supports once-daily dosing without a pharmacokinetic booster. Patients in all DTG dose groups demonstrated a statistically significant reduction in plasma human immunodeficiency virus (HIV) 1 RNA from baseline with numeric increases in cluster of differentiation (CD) 4+ cell counts. DTG has also been known to cause derangements in metabolic and biochemical parameters. Randomized trials have shown it to cause a rise in alanine aminotransferase, triglycerides, and plasma blood glucose levels.

Various trials and studies have assessed the efficacy and toxicity of DTG as monotherapy or as a first-line antiretroviral therapy (ART). Data for its performance in the second-line regimen is scarce, especially from our country. Our study will aim to assess the efficacy and toxicity profile of a DTG-based regimen as second-line ART in a tertiary care center in Western Maharashtra.

Materials: An ambisective (retrospective plus prospective) study conducted at the tertiary care hospital/medical college in Western Maharashtra.

Objectives: To describe the clinical status, immune reconstitution, and virological suppression in patients on DTG as second-line anti-retroviral therapy.

To describe the toxicity of DTG on the metabolic and biochemical parameters.

Inclusion criteria: HIV positive >18 years old; patients who have failed their first-line ART—immunological, virological, or clinical failure.

Patients started on a DTG-based regimen as second-line ART in the past 1 year and on regular follow-up.

New patients are put on second-line DTG after failing their first-line regimen, which will be followed for the next 1 year.

Methodology: After getting informed consent, each patient was assessed for their clinical status. CD4 count and viral load measurements were done at baseline, 6, and 12 months to determine the efficacy of the drug.

The adverse effect profile of DTG on the metabolic and biochemical parameters was assessed every 12 weeks. It included measurement of lipid profile, glycemic status, liver function abnormalities, and assessment of weight change. The primary toxicity of companion drugs in the regimen, such as tenofovir or zidovudine, causing renal dysfunction and anemia, respectively, were not considered for the purpose of this study.

Observation: The study concluded that there was a statistically significant virological suppression and rise in CD4 counts, with no development of any opportunistic Infections. The effect on the metabolic profile showed weight gain in <3%, transaminitis in <2%, dysglycemia in <3%, and an insignificant increase in total cholesterol and triglycerides.

Conclusion: This study signifies the importance of DTG-based ART, even as second-line ART, with statistically significant viral load suppression and CD4 improvement. The adverse effects on the metabolic profile of the patient are minimal and not very distressing.

Hypertension

Rationale and Study Design of Evaluation of Effectiveness and Safety of Telmisartan and Amlodipine Fixed Dose Combination in Indian Hypertensive Patients: a Prospective, Longitudinal, Multicenter, and Observational Study

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Background: Hypertension is a prevalent health condition among the Indian population, leading to severe health complications if left untreated. Recent studies reported a hypertension prevalence of 35% among the adult population in India, and hypertension is attributable to 10.8% of all deaths in India. Recent hypertension management guidelines recommend the initiation of antihypertensive therapy with a two-drug combination, and the preferred combination comprises a renin-angiotensin system blocker (angiotensin-converting enzyme inhibitors/angiotensin 2 receptor blocker) with a calcium channel blockers or thiazide/thiazide-like diuretic. However, there are lacunae of real-world, large-scale longitudinal studies on the safety and effectiveness of telmisartan and amlodipine fixed-dose combination (FDC) in Indian patients.

Methods: The evaluation of the effectiveness and safety of telmisartan and amlodipine FDC in Indian hypertensive patients (TACT-India) is a prospective, longitudinal, multicenter, observational study. The primary objective of the study is to evaluate the effectiveness of telmisartan and amlodipine FDC, and the secondary objective is to evaluate the safety of the combination. Overall, 10,000 HF patients from 1,000 study sites across India will be included. The primary endpoint of this study is to assess the change in the systolic blood pressure (SBP) from baseline to 8 weeks. The secondary endpoint is to evaluate the percentage of patients achieving the blood pressure goal [SBP <140 mm Hg and diastolic blood pressure <90 mm Hg] at 8 weeks, to evaluate the safety of telmisartan plus amlodipine FDC and to analyze the demographic characteristics, comorbidities, concomitant medications in hypertensive patients. Data will be recorded from the time point when the patient was initiated on telmisartan plus amlodipine FDC as part of routine clinical practice.

Conclusion: The TACT-India study is expected to reveal the real-world effectiveness of the FDC of telmisartan and amlodipine in the management of hypertension. To our knowledge, this is a first-of-its-kind study with a large sample size of India's hypertensive patients. The findings of this study will help to understand the effectiveness of the FDC in reducing SBP, the patients achieving their target BP goal, and the safety profile of the combination.

Association between Nocturnal Blood Pressure and Urine Albumin Creatinine Ratio in Normotensive Type-2 Diabetes Mellitus Patients without Chronic Kidney Disease

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Introduction: Albuminuria is a sensitive and early predictor of renal damage among diabetics, and so are nocturnal blood pressure and loss of physiological dip in blood pressure among hypertensives. However, the correlation between nocturnal blood pressure and albuminuria in nonhypertensive diabetics has not been sufficiently studied before. This may add a new dimension in evaluating the risk factors for chronic kidney disease (CKD) in diabetics and help to decide to start renoprotective measures much earlier in the course of diabetes and delay the onset and progression to CKD.

Materials and methods: In this observational study at MS Ramaiah Hospitals, 46 consecutive normotensive diabetics were enrolled and categorized based on the urine albumin-creatinine ratio (UACR) levels.

The office, nocturnal, and dip in blood pressure (BP) were compared with the UACR and other laboratory parameters. Data was statistically analyzed, and results were compared.

Results: A total of 62.5% were males, and 34.8% were females; 43.5% belonged to the age group above 60 years. Around 24% were newly diagnosed, and 76% were diabetics. Age, gender, and body mass index did not have a significant correlation with UACR. Half (50%) of the patients had microalbuminuria, 39.1% had normal, and 10.9% had macroalbuminuria. Nocturnal systolic and diastolic blood pressure and degree of loss of physiological dip are better predictors of UACR than office measurement. There was a statistically significant association between nocturnal blood pressure and diabetic retinopathy, glycosylated hemoglobin (HbA1C) and UACR, albuminuria, and elevated triglycerides and LDL levels.

Conclusion: Urine albumin-creatinine ratio (UACR) strongly correlates to nocturnal blood pressure. The nocturnal systolic BP (SBP) is a better predictor of albuminuria than office SBP. The dip in diastolic BP (DBP) is a better predictor of albuminuria than nocturnal and office DBP. UACR also strongly correlates to HbA1C, lipid levels, and retinopathy

CURRENT SCENARIO OF MASKED AND WHITE COAT HYPERTENSION IN MEDICAL PROFESSIONALS IN BUNDELKHAND REGION

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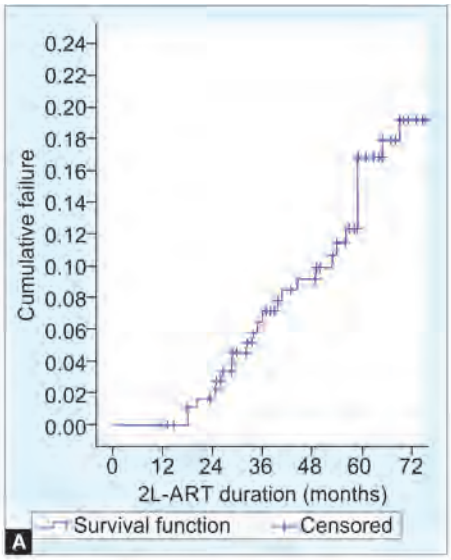
Background and objective: The medical profession is believed to be one of the most stressful professions. The present study was done to evaluate the current scenario of masked and white coat hypertension among medical professionals in the Bundelkhand region.

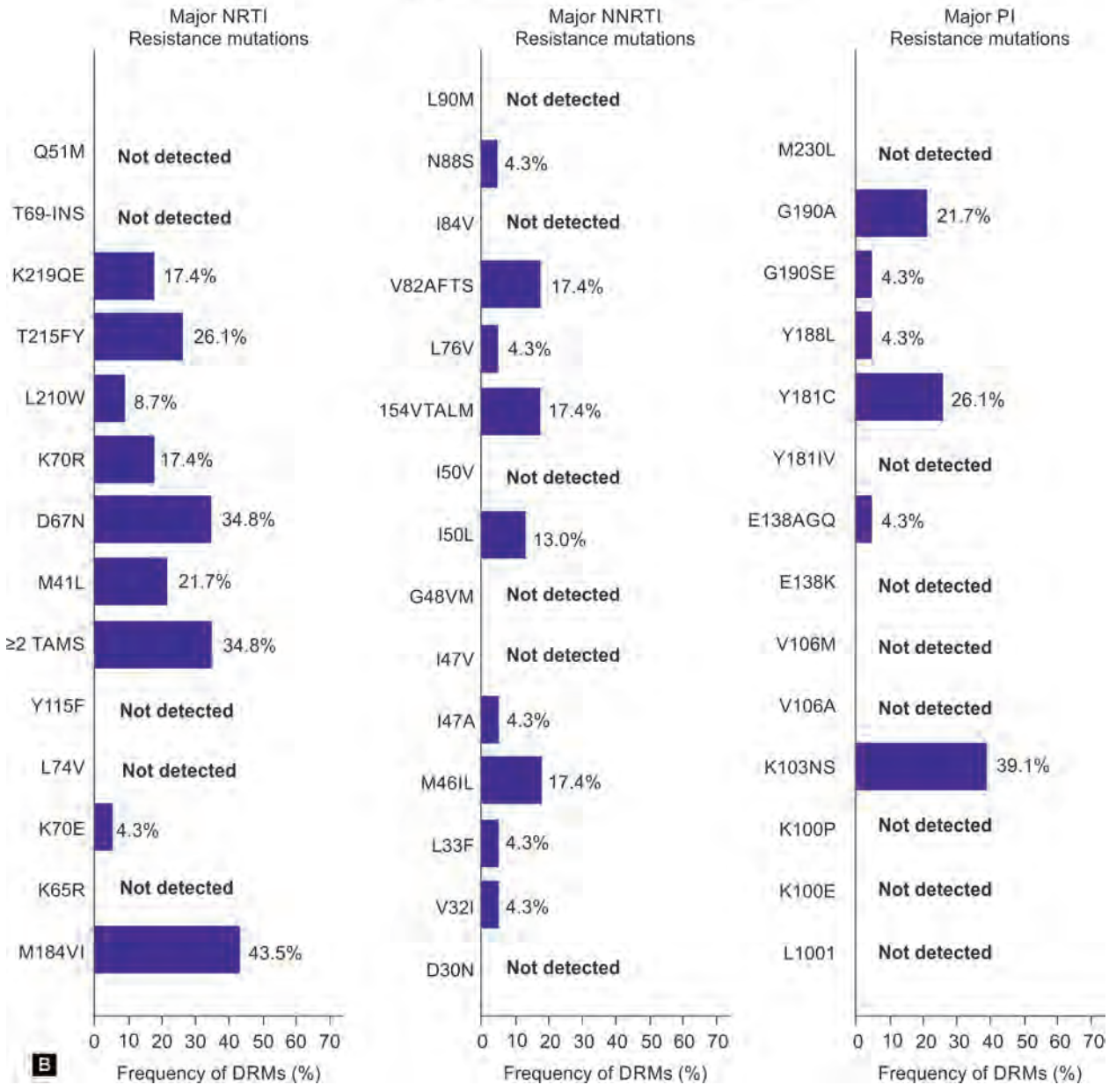
Methods: This cross-sectional observational study was conducted at the Department of Medicine, MLB Medical College, Jhansi, over a period between January 2014 and June 2015 on 300 medical professionals, which included undergraduates, PG students, consultants, nursing staff, and ministerial staff. All patients underwent history taking, physical examination, laboratory analysis, office blood pressure (BP), and ambulatory BP monitoring (ABPM).

Results: Four groups were identified based on office and ambulatory blood pressure monitoring:

- True normotensive patients (BPs are normal both clinically and by ABPM) 197 (65.7%).
- True hypertensive patients (both office and ABPM were high) 23 (7.7%).
- White coat hypertensive patients (clinical BP was above limits, but ABPM was normal)
- (24.3%).
- Masked hypertensive patients (clinical BP was normal, but ABPM was high 7 (2.3%).

Out of 300 subjects, there were 158 UG students, 49 PG students, six consultants, 66 nursing staff, and 21 ministerial staff. White coat hypertension was more prevalent in undergraduates. Out of a total of 147 subjects who were prehypertensives by office blood pressure, 140 subjects (95.2%) were true normotensive, and 7 (4.8%) were having masked hypertension. None of the prehypertensive subjects


Cumulative failure
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0 12 24 36 48 60 72
2L-ART duration (months)
Survival function
Censored
A


Major NRTI Resistance mutations
Q51M Not detected
T69-INS Not detected
K219QE 17.4%
T215FY 26.1%
L210W 8.7%
K70R 17.4%
D67N 34.8%
M41L 21.7%
≥2 TAMS 34.8%
Y115F Not detected
L74V Not detected
K70E 4.3%
K65R Not detected
M184VI 43.5%
0 10 20 30 40 50 60 70
Frequency of DRMs (%)
B
Major NNRTI Resistance mutations
L90M Not detected
N88S 4.3%
I84V Not detected
V82AFTS 17.4%
L76V 4.3%
154VTALM 17.4%
I50V Not detected
I50L 13.0%
G48VM Not detected
I47V Not detected
I47A 4.3%
M46IL 17.4%
L33F 4.3%
V32I 4.3%
D30N Not detected
0 10 20 30 40 50 60 70
Frequency of DRMs (%)
Major PI Resistance mutations
M230L Not detected
G190A 21.7%
G190SE 4.3%
Y188L 4.3%
Y181C 26.1%
Y181IV Not detected
E138AGQ 4.3%
E138K Not detected
V106M Not detected
V106A Not detected
K103NS 39.1%
K100P Not detected
K100E Not detected
L100I Not detected
0 10 20 30 40 50 60 70
Frequency of DRMs (%)

had true hypertension. Out of a total of 96 subjects who were hypertensives by office blood pressure, only 23 (23.9%) subjects were true hypertensive, and the majority of 73 subjects (76.1%) were having white coat hypertension.

Conclusion: White coat hypertension was more prevalent in undergraduates, and masked hypertension was more seen in nursing staff in this study. We did not find any target organ damage in white-coat hypertensives and masked hypertensives. They don't warrant antihypertensive treatment at this stage. These subjects may develop hypertension and target organ damage in upcoming years but earlier than the normal subjects. These subjects should be followed for the development of hypertension and target organ damage.

A Cross-Sectional, Observational, and Case-Control Study of Proportion, Clinical Profile, and Abpm Parameters of Patients with Resistant Hypertension in A Tertiary Care Hospital

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Introduction: Resistant hypertension (RH) is a challenging domain in the world of hypertension (HTN). The true prevalence of RH is still an enigma. Data regarding clinical and ambulatory blood pressure monitoring (ABPM) profiles of such patients is severely deficient. Early recognition of this is necessary to halt the process of end-organ damage.

Aims and objectives: The study was planned to compare the clinical and laboratory profiles, including ABPM parameters of patients of RH with hypertensive patients without RH. A secondary objective was to study the association of various clinical and laboratory parameters in determining the etiology of RH.

Materials and methods: This study, conducted at the tertiary hospital's hypertension clinic, employed an observational, cross-sectional, and case-control design over 18 months. The study aimed at determining the prevalence of RH amongst all HTN patients and comparing clinical parameters between HTN and RH patients. A total of 89 cases and 162 controls were included in the study, totaling 251 participants. ABPM study was done using the Meditech ABPM 05 machine, and Easy ABPM software was used for 24 hours per patient.

Results: A total of 990 HTN patients visiting hypertension clinics were screened. The proportion of RH in patients visiting the clinic of a tertiary care hospital is 9.6%. A total of 6.2% of patients satisfied the standard definition, while 3.4% of patients satisfied the alternate definition of RH. Diabetes was the most common comorbidity in non-RH patients, while chronic kidney disease was the most common comorbidity in RH patients. RH patients had a higher proportion of ischemic heart disease than non-RH. The proportion of reverse dippers was higher in RH than in non-RH. The 3D subgroup has the highest proportion of reverse dippers.

Conclusion: The study found that 9.6% of HTN patients met the criteria for RH, with a slightly higher prevalence among females. All the parameters of ABPM, including nondipping pattern and many biochemical parameters denoting the end-organ damage, were found to be significantly higher amongst the RH group. Hence, this study highlights the necessity and benefits of utilizing the power of ABPM-guided, tailored approach for different subsets of RH for better outcomes.

Unveiling the Uncommon: exploring Unique Cases of Secondary Hypertension

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Introduction: This case series delves into a cohort of individuals diagnosed with secondary hypertension, aiming to elucidate the diverse etiologies, clinical manifestations, and therapeutic interventions associated with this subset of hypertensive disorders.

This study seeks to contribute valuable insights into the nuanced clinical presentations and varied etiologies of secondary hypertension. Understanding these intricacies is essential for clinicians to enhance diagnostic accuracy, guide targeted investigations, and optimize treatment strategies, ultimately improving patient outcomes.

Materials and methods: Study design—this retrospective case series involved the systematic analysis of medical records from the wards and intensive care units of the Department of General Medicine, Government Medical College, Kozhikode, spanning a 1-year timeframe. The study protocol adhered to ethical standards outlined in the Declaration of Helsinki and was approved by the Institutional Review Board.

Patient selection: A total of 11 patients diagnosed with secondary hypertension were included in this case series after meeting inclusion and exclusion criteria requirements.

Data collection: Comprehensive medical records of eligible patients were thoroughly reviewed and documented.

Diagnostic criteria: The diagnosis of secondary hypertension was established based on a combination of clinical, laboratory, and imaging findings.

Etiological classification: Patients were classified into distinct etiological categories based on the identified secondary cause of hypertension.

Statistical analysis: Descriptive statistics, including means, standard deviations, and frequencies, were employed to summarize demographic and clinical characteristics.

Observations:

Case no.	*Age*	*Sex*	*Diagnosis*	*Treatment outcome*
1	35	F	Fibromuscular dysplasia	Good
2	32	M	Chronic glomerulonephritis	Poor
3	65	M	Atherosclerotic renal artery stenosis	Good
4	27	F	Conn's syndrome	Good
5	35	M	Coarctation of Aorta	Good
6	52	F	Cushing's disease	Good
7	44	M	Grave's disease	Good
8	50	M	Pheochromocytoma	Good
9	18	F	Takayasu arteritis	Good
10	56	F	Obstructive sleep apnea	Good
11	17	F	17-α-hydroxylase deficiency	Good

Conclusion: There have been numerous case reports of dengue-induced HLH but HLH in sickel cell anemia usually has poorer prognosis, however timely treatment of causative agent is pertinent and immunosuppression in HLH is not always be required. Remote possibility of HLH should always be kept in pancytopenia in case of sickel cell anemia.

The mean age of presentation in our study was 39.18, with a female predominance. The median age of presentation was 35, with a range of 48. The majority of the patients had a good treatment outcome after identifying the cause of hypertension.

Conclusion: In this retrospective case series examining 11 patients with secondary hypertension, a diverse spectrum of underlying etiologies and clinical presentations has been elucidated.

The identification of specific secondary causes, including renal parenchymal disease, endocrine disorders, and renovascular hypertension, has direct implications for tailoring treatment strategies.

Limitations of this case series, including the retrospective nature and the relatively small sample size, should be acknowledged. The absence of inferential statistical analyses underscores the exploratory nature of the study, prompting the need for larger, prospective investigations to validate and extend our findings.

Epidemiology, Clinical Manifestations, Complications and Outcome of Scrub Typhus: A Hospital-Based Observational Study from A Tier-2 city in South India

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Introduction: Scrub typhus is a mite-borne infectious disease caused by *Orientia tsutsugamushi*. Although endemic in India, scrub typhus remains grossly underdiagnosed. Though effective treatment in the form of doxycycline and azithromycin is available, a large number of patients develop complications with high mortality, mostly owing to delay in diagnosis and late initiation of specific treatment.

Materials and methods: This is a retrospective observational study of scrub typhus patients admitted between January 2021 and December 2022 in our hospital. Patients >12 years with positive scrub typhus immunoglobulin M were included. Data were collected from our hospital medical records department.

Results: There were 107 cases in the study. The majority were admitted in the winter months. A majority, 66% (n = 71) were females, and 34% (n = 36) were males. The most common age group was 41–60 years. 33% were housewives, 32% were laborers and 14% were farmers. Fever (n = 106) was the most common symptom, followed by nausea/vomiting (n = 50), myalgia, headache, and dyspnea. A total of 45% had eschar. The thigh was the most common site of eschar, followed by the breast and abdomen. Around 48% had pleural effusion. Acute kidney injury was seen in 17% of patients. Only 15% and 16% of patients required mechanical ventilation and inotropes, respectively. Six patients were discharged against medical advice. Only one patient (1%) died. Among the 100 patients who recovered completely, 37 received doxycycline, 61 received doxycycline plus azithromycin, and two pregnant patients received azithromycin. The average length of stay was 3.8 days and 6.1 days in the doxycycline group and doxycycline plus azithromycin group, respectively.

Conclusion: This study shows the wide variety of clinical manifestations and complications of scrub typhus in a tier 2 city in South India. A high suspicion for scrub typhus is required in acute febrile illness patients, especially in the winter months. Early diagnosis and appropriate treatment with doxycycline are crucial in managing them.

Correlation of Prevalence of Myocarditis in cases of Scrub Typhus and Correlation of Mortality and Morbidity in Patients with Scrub Typhus with Raised CPK-MB

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Introduction: Scrub typhus is caused by *Orientia tsutsugamushi* (*O. tsutsugamushi*) and is transmitted to humans by an arthropod vector of the Trombiculidae family. Scrub typhus is acquired by humans when an infected chigger bites them while feeding, and *O. tsutsugamushi* pathogens are inoculated in the body. Scrub typhus has features of fever maculopapular rash, which starts from the trunk and eventually spreads to the limbs. Scrub typhus affects the cardiovascular system, central nervous system, respiratory, gastrointestinal system, and renal system. Serious complication is caused by scrub typhus, like myocarditis, pneumonia, acute renal failure, meningoencephalitis, gastrointestinal bleeding, and acute respiratory distress syndrome. The mainstay of diagnosis is serology. In primary infection, immunoglobulin (Ig) M is increased in the first week, and IgG is elevated in the second week. In reinfection, IgM is variable, and IgG is detectable by day 6.

Materials: Study design—observational study; study duration—1st October 2022 to 31st May 2023

Number of cases: 35

Sampling technique: All patients admitted to the emergency ward, ICU with scrub typhus positive.

Inclusion criteria: Patients with scrub typhus positive.

Investigations used in the study to diagnose myocarditis: Creatine kinase-MB (CPK-MB), N-terminal pro-B-type natriuretic peptide (NT Pro-BNP), electrocardiogram (ECG), and two-dimensional echocardiogram (2D echo).

Observation: Out of 35 patients that were included in the study, 11 patients had raised CPK-MB, six patients had raised NT Pro-BNP, in ECG, 15 patients had tachycardia, seven patients had bradycardia, three patients had t-wave inversion, in 2D echo one patient had severe systolic dysfunction with reduced ejection fraction with anterior wall hypokinesia.

On death was recorded in patients with raised CPK-MB with scrub typhus, and no deaths were recorded in patients with normal CPK-MB.

Conclusion: Scrub typhus is a serious acute febrile illness with high mortality and morbidity with raised CPK-MB, and the prevalence of myocarditis is high in scrub typhus.

A Rare Presentation of Rickettsial Infection as Purpura Fulminans

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Introduction: *Rickettsia* is a heterogeneous group of small obligately intracellular gram-negative coccobacilli and short bacilli, most of which are transmitted by a tick, mite, flea, or louse vector. Among *Rickettsia*, *Coxiella burnetii*, *Rickettsia prowazekii*, and *Rickettsia typhi* are extremely infectious. Purpura is seen when there is an extravasation of red blood cells in the dermis.

Case report: A 40-year-old man, hypertensive and diabetic, presented to the hospital with complaints of fever and yellowish discoloration of eyes and urine for 1 week, cough and rashes which began over the face and rapidly progressed to involve the trunk and extremities since 3–4 days with no other significant history.

On physical examination, his vitals were stable. Rashes are present all over the body, nonblanchable. Mild hepatomegaly is present. Another system examination was normal.

On investigations, leucocytosis+, thrombocytopenia+, liver function test was deranged, viral markers negative, C-reactive protein was elevated, Weil–Felix was positive—OX19: 1:160, OX2: 1:320, OXK: 1:180.

The patient was started on doxycycline in view of fever with rash (well-demarcated, nonblanchable, purple present on upper limbs, lower limbs, and lower abdomen). A dermatology opinion was sought for the rash, and it was treated for the same. The patient was treated with adequate hydration and IV antibiotics. Antibiotics were continued for a week. The patient showed recovery during this course. After the treatment, the rashes improved and healed with hypopigmentation.

Discussion: Purpura fulminans is an acute purpuric rash characterized by coagulation of the microvasculature, which leads to purpuric lesions and skin necrosis. Patients are often acutely ill with fever, have hemorrhage from multiple sites, and have hypotension. Idiopathic purpura fulminans is thought to be a postinfectious autoimmune disorder often following an initiating febrile illness, which leads to rapidly progressive purpura. Protein C is supposed to be the causative.

Conclusion: The patient was diagnosed with acute purpura fulminans secondary to rickettsial infection. Rickettsial fever is seldom diagnosed in India, probably due to a low index of suspicion, which can be fatal. Weil–Felix test is relatively specific, inexpensive, and can be used as an initial investigation to substantiate the diagnosis.

Safety and Efficacy of a Combination of Paromomycin and Miltefosine for Two vs Three Courses in Patients with Post-Kala-Azar Dermal Leishmaniasis: an Observational Pilot Study

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Introduction: Post-Kala-azar dermal leishmaniasis (PKDL) is considered a reservoir of visceral leishmaniasis. It plays an important role in disease transmission. As there is no treatment that will be 100% safe and efficacious moreover, the parasite also shows a gradual increase in tolerance and resistance. Since the combination of paromomycin and miltefosine has been found to be safe, highly effective, and cheap, this observational pilot study was undertaken to find out whether this combination is effective in PKDL. This study will help the program maker to make a short-term treatment regimen for PKDL with minimal side effects. This study evaluates the efficacy and safety of a novel combination, that is, paromomycin plus miltefosine, in the treatment of PKDL, which has not been tried previously.

Methods: This is a pilot exploratory study. A total of 30 patients were enrolled in two groups. Group I (n = 15) received two courses of paromomycin 11 mg/kg/day IM plus miltefosine 2.5 mg/kg/day orally (10 days) at a gap of 15 days between each course, whereas group II (n = 15) received three courses of paromomycin plus miltefosine combination. The efficacy of these therapies was ascertained by the complete resolution of signs and symptoms of PKDL and grade 0 parasitic score in the skin lesions at 1-year follow-up.

Observations: Lesions of the group I patients did not disappear completely at the end of therapy, so all the patients were shifted to receive three courses of the same combination. All the 30 patients completed the study. The initial and final parasitological cures were found to be 100 and 83.33% (95% confidence interval 69.5–96.5%), respectively. A total of 63 adverse events (AEs) were reported in 24 patients. All the AEs were common terminology criteria for grade one. Pain at the site of injection (28.6%) was the most commonly occurring AE, and an increase in hepatic enzyme levels, eosinophilia, vomiting, gastritis, etc., were among others.

Conclusion: The efficacy of this novel combination therapy appears to be optimal, with excellent safety and tolerability profile. Further studies with a higher number of samples are recommended.

A Rare Encounter—Melioidosis-Induced Sinusitis and Orbital Abscess: an Exceptional Clinical Insight

K Lathish Reddy

Introduction: Melioidosis is caused by *Burkholderia pseudomallei* bacteria found in soil and can enter the human body through various means. The signs and symptoms are nonspecific and overlap with several diseases, including tuberculosis. In microbiology labs, it can be mistaken for *Pseudomonas* spp, and its presence may be dismissed as a lab contaminant. Additionally, the poor sensitivity of blood culture tests further contributes to missed diagnoses. Thus, melioidosis, "the great mimicker" of many diseases, is grossly underdiagnosed and underreported across India. However, with the expansion of lab services and awareness, the annual reported incidence is rapidly increasing. The highest number of annual cases (nearly 600 patients in recent years) has been reported during 2021. Acute melioidosis typically manifests as pneumonia, sepsis, and multiorgan abscesses. Exploring less common presentations of melioidosis can encourage healthcare professionals to stay vigilant, raising awareness and improving the chances of identifying and treating such cases effectively.

Case report: I present a case of a 52-year-old male, a mason by occupation, who came with complaints of fever associated with a headache for 10 days.

A 52-year-old gentleman with no previous comorbidities presented with a fever associated with a headache for 10 days. Previously, the patient sought treatment at a local hospital, following which he had no symptomatic improvement. He then started to develop swelling around the left eye 7 days back. This was a/w diminution of vision, redness, and pain in the left eye.

A contrast-enhanced computed tomography (CECT) orbit and paranasal sinus were done, which revealed features suggestive of left orbital cellulitis with inflammatory phlegmon formation. The patient was admitted under the ear, nose, and throat (ENT) involving frontoethmoidal sinusitis. The patient underwent left functional endoscopic sinus surgery and orbital decompression. Later, the patient was transferred to the infectious diseases department as the blood culture revealed growth of Burkholderia pseudomallei; however, the pus was sterile.

Due to worsening eye swelling, CECT orbits, paranasal sinuses, and brain were repeated, which revealed a soft tissue density lesion measuring 24 × 20 mm in the superior compartment of orbit on the left side, extraconal compartment with compression and displacement of superior rectus inferomedially. The lesion extended into the extraorbital preseptal soft tissue compartment. There was an enlargement of the superior rectus and lateral rectus on the left side, with a lesion compressing the left globe. An intraorbital segment of the left optic nerve was reduced in caliber. This was suggestive of left subperiosteal cellulitis on the left side. The patient underwent drainage by the ophthalmology department. In spite of the patient not having classic risk factors for melioidosis like diabetes and chronic kidney disease, her orbital cellulitis was attributed to *Burkholderia psedomallei* bacteria. The patient was started on an injection of meropenem and an injection of doxycycline, following which the patient's eye swelling and fever were reduced. At the time of discharge, the patient's vision was normal, and the left eye swelling was minimal. His inflammatory markers also improved. He also had hepatitis and mild thrombocytopenia at presentation, which improved with antibiotics. Repeat blood culture was 48 hours sterile. The patient was advised to continue injections of meropenem (at the local hospital) and oral doxycycline.

Conclusion: In conclusion, this case underscores the importance of vigilance in diagnosing rare and atypical presentations of diseases, even in patients without typical risk factors. The timely collaboration between different medical specialties, including ENT, ophthalmology, and infectious diseases, played a critical role in identifying and managing this case of *Burkholderia pseudomallei*-induced orbital cellulitis, a condition often associated with melioidosis. Through a combination of surgical intervention and targeted antibiotic therapy, the patient experienced a remarkable improvement in symptoms and overall health. This case serves as a valuable reminder that thorough clinical evaluation, interdisciplinary cooperation, and prompt treatment can lead to successful outcomes, even in uncommon clinical scenarios. It also emphasizes the need for continued surveillance and awareness of melioidosis, particularly in regions where it is endemic or emerging.

Multiple Embolic Stroke in Dengue Hemorrhagic Fever: an Unusual Neurological Manifestation

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Introduction: Dengue viral infection is one of the most prevalent mosquito-borne viral diseases. Expanded dengue syndrome is the designation of cases that include unusual manifestations and severe organ involvement. Neurological manifestations are recognized in dengue infection, but stroke is a rare complication. Here, we report a case of a 37-year-old male who was diagnosed with dengue fever and subsequently developed embolic stroke as a complication.

Case report: A 37-year-old male with no known comorbidities presented with fever and myalgia of 1 week duration. He was initially admitted to an outside hospital with thrombocytopenia, a drop in sensorium, and subsequent respiratory arrest. He was intubated and was transferred to our hospital. Upon arrival, he was unconscious, and a central nervous system examination revealed hypotonia in all four limbs and bilateral extensor plantar. Initial investigation revealed elevated inflammatory markers, elevated creatinine, and thrombocytopenia. Dengue diagnosis was made based on the dengue immunoglobulin M enzyme-linked immunosorbent assay test. He was treated with empirical antibiotics and intravenous fluid. In view of the reduced Glasgow Coma test and upper motor neuron signs, a magnetic resonance imaging of the brain was taken, and it showed acute infarct in bilateral basal ganglia, lentiform nucleus, thalamus, and midbrain, suggestive of embolic stroke. A tracheostomy was done in view of Respiratory failure due to underlying brainstem stroke. He was having recurrent fever spikes and was treated with IVIG and steroids because of suspicion of macrophage activation syndrome. He gradually improved with treatment and was discharged.

Conclusion: Stroke as a complication of dengue is uncommon. These are mainly hemorrhagic strokes related to thrombocytopenia. Ischemic stroke is rare, and embolic stroke is even rarer. So, dengue might be a cause of stroke in epidemic regions when patients present with fever, focal neurological deficit, or encephalopathy and require complex intensive care.

Mycobacteriosis: Coinfection Of Tuberculosis And Leprosy

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Tuberculosis and leprosy are both endemic communicable diseases in India, although their simultaneous occurrence in an individual is a rare entity. A 32-year-old female primigravida with an 18-week period of gestation presents to the medicine outpatient department with symptoms of low-grade fever for 3–4 months and swelling over her face, hands, and feet for 2–3 months. On examination, the patient had pallor, nonpitting edema over hands and feet with nodular eruptions over knuckles and interphalangeal joints, facial puffiness, and hepato-splenomegaly. Lab investigation revealed Pancytopenia, elevated erythrocyte sedimentation rate, and C-reactive protein. Bone marrow biopsy revealed acid-fast bacilli, likely tuberculosis. The patient was started on anti-tuberculosis treatment and discharged. However, the patient returned within a week with new nodular lesions over her face while the nodules on the initial presentation on her knuckles increased in size. A slit skin smear revealed a 5+ bacterial index for *lepra* bacilli, and the patient was diagnosed to have borderline lepromatous leprosy with type 2 lepra reaction. A negative Fite stain on a fresh bone marrow biopsy from the patient confirmed mycobacterium in the bone marrow was not leprae. The patient was started on multidrug therapy for leprosy along with antitubercular therapy and low-dose steroids for lepra reaction. The patient improved significantly following the revised course of medications and is kept on close follow-up. Immunological changes during pregnancy and socioeconomic conditions could predispose such a patient to either of the two pathogens. However, the interaction between leprosy and tuberculosis and the pathophysiology of their coexistence in a single individual still remains a matter of debate.

Comparison Between Serum Ferritin and C-Reactive Protein as a Marker In Dengue Hepatitis in a Tertiary Care Center

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Introduction: Dengue is a mosquito-transmitted virus and the leading cause of arthropod-borne viral disease in the world. Although most cases are asymptomatic, severe illness and death may occur. The incidence of dengue has increased dramatically over the past few decades. Common laboratory findings include thrombocytopenia, leukopenia, and elevated aspartate aminotransferase. The disease is classified as dengue or severe dengue. The spectrum of liver dysfunction with dengue infection is wide and has been associated with disease severity. In severe dengue, the degree of liver dysfunction varies from mild injury with elevation of aminotransferases to even fulminant hepatic failure. Hepatic dysfunction in dengue infection may be attributed to a direct viral effect on liver cells or as a consequence of dysregulated host immune responses against the virus.

Methodology: It is an observational study that focused on patients with severe dengue admitted as NS1Ag, IgM positive, or both. In this group, the demographic data of hepatic involvement as elevated levels of aspartate aminotransferase (AST) and alanine aminotransferase (ALT) was compared with biomarkers such as serum ferritin levels and serum C-reactive protein to find out better marker to indicate severe dengue with hepatitis.

Result: Out of a total of 41 cases (n = 41), the median serum AST was 149 [interquartile range (IQR): 81.0–411.5], and serum ALT was 88 (IQR: 48.0–206.0). The median serum ferritin in severe dengue was 1290 (IQR: 434.5–2712.0), and serum C-reactive protein was 6.2 (IQR: 3.4–28.3). The diagnostic sensitivity and specificity of serum ferritin (at a diagnostic cut-off of >938.5 ng/mL) were 80.6 and 90%, respectively, with an AUC of 0.871, which is statistically significant ($p \leq 0.001$). The diagnostic sensitivity and specificity of serum C-reactive protein (at a

diagnostic cutoff of >6 mg/L) were 58.1 and 70%, respectively, with an AUC of 0.611, which is statistically not significant (p = 0.295).

Conclusion: Through this study, we analyzed that serum ferritin has better diagnostic value in determining hepatitis in severe dengue patients, which is statistically significant and has a better correlation than serum C-reactive protein.

Disseminated Histoplasmosis with Disseminated Koch's: an Unusual Association

Krishna Chandra

Introduction: Distinguishing between histoplasmosis, tuberculosis (TB), and cooccurrence of disease is a frequent dilemma for clinical staff treating people with advanced human immunodeficiency virus (HIV) infection. This problem is most frequently observed in clinical settings in countries where both diseases are endemic. It is also a challenge outside these endemic countries in HIV clinics that take care of patients coming from countries with endemic histoplasmosis and TB. The gold standard for diagnosis of both of these diseases is based on conventional laboratory tests (culture, histopathology, and special stains). Mortality in immunocompromised patients, such as people with advanced HIV, is directly linked with the ability to rapidly diagnose opportunistic diseases.

Case report: This is a 44-year-old male, HIV negative, presented with complaints of fever for 4 months and generalized nodules on the skin for 1.5 months with hepatomegaly, biopsy of which revealed histoplasmosis. For this, he was treated with intravenous amphotericin B and oral itraconazole. He was also diagnosed with hemolytic anemia *via* the Coombs test. He had persistent fever with cough and a right psoas abscess; the cartridge-based nucleic acid amplification test was positive, suggestive of disseminated TB. The patient was initiated on antitubercular therapy and is on regular follow-up.

Conclusion: Coinfection of histoplasmosis and tuberculosis is uncommon among immunocompetent individuals. Hence, in patients with unexplained fever, abscesses at unusual sites, and unexplained skin lesions, a high index for nonbacterial infections should be maintained.

Complications of Scrub Typhus Infection at a Tertiary Care Center in Odisha

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Introduction: Scrub typhus is an acute febrile illness caused by obligate intracellular bacteria *Orientia tsutsugamushi*. The vector is the larval trombiculid mites (chiggers) of the genus *Leptotrombidium*. It is an often unrecognized and neglected disease that is prevalent in tropical regions of endemic areas. In the present study, we assessed the various complications associated with scrub typhus and how they affect outcomes.

Methods: The present study is a retrospective observational study that included adults aged >18 years who tested seropositive for scrub immunoglobulin M enzyme-linked immunosorbent assay. Those who tested seropositive for other infections as well were excluded. The complications assessed in this study have been defined by various clinical and biochemical parameters as per standard guidelines.

Results: All cases of scrub typhus (n = 50) presented with fever and commonly had other symptoms such as headache, myalgia, vomiting, nausea, abdominal pain, cough, altered sensorium, and rashes. Among laboratory parameters, leukocytosis was seen in 19 (38%), leukopenia in four (8%), thrombocytopenia in 23 (46%), raised liver enzymes in 35 (70%), and raised creatinine values were seen in 30 (60%). The most common complications were hepatitis in 35 (70%), renal impairment in 30 (60%), multiple organ dysfunction syndrome in 31 (62%), severe thrombocytopenia in 23 (46%), and pneumonia in 18 (36%). Other complications included encephalitis in 8 (16%) and myocarditis in one (2%). Overall, the mortality rate in this study was 22%, and all of these patients had complications involving multiple organs.

Conclusion: The presence of complications in scrub typhus infection is associated with higher mortality. Therefore, scrub typhus should be considered as a differential in any case of acute febrile illness and should be tested for. Earlier diagnosis and treatment with doxycycline are associated with favorable outcomes.

Unraveling the Complexity of SLE And Sjogren's in a Patient With Toxoplasmosis

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Introduction: Toxoplasmosis is a zoonotic infection resulting from the infection with a parasite, *Toxoplasma gondii*, by ingestion of the oocyte. Commonly acquired from contact with cat feces or even contaminated food in immunocompromised patients. Patients can have vague symptoms such as fever, myalgia, and swollen lymph nodes.

Sjogren's syndrome is an autoimmune disorder characterized by dryness of mouth and eyes. A score >4 on the American College of Rheumatology–European League against Rheumatism (ACR-EULAR) criteria for Sjogren's is considered diagnostic.

Systemic lupus erythematosus is an autoimmune condition that can have a plethora of manifestations and is diagnosed with >10 points on the ACR-EULAR criteria.

Case report: Here, we present a patient who had a known case of hypothyroidism and presented to a hospital with symptoms of fatigue and an enlarged cervical lymph node for 8 months. A careful history taking had given the clinicians a clue of probable toxoplasmosis. Relevant blood investigations for the same were sent, and a diagnosis of toxoplasmosis was confirmed with a biopsy. Whole-body positron emission tomography–computed tomography showed multiple lymph nodes. Workup for autoimmune conditions was also sent in view of the patient's long-term history of joint pains, weight loss, and suggestive blood investigations. She was found to be satisfying the ACR-EULAR criteria (for Sjogren's) and EULAR criteria [for systemic lupus erythematosus (SLE)]. She was started on IV antibiotics: cotrimoxazole, steroids, and mycophenolate mofetil. She showed slow and steady improvement, which was interrupted by a steroid-induced psychosis. Steroids were stopped; however, she again developed hallucinations, which were thought to be due to SLE psychosis.

Now, 6 months from the first admission, she is showing a good response to current medications.

Conclusion: This case is an unusual presentation as she had newly detected toxoplasmosis with newly detected underlying autoimmune disorders, making the treatment a truly challenging process.

Genitourinary Tuberculosis: Case Series

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Introduction: Genitourinary tuberculosis (GUTB) has been reported to constitute 10–14% of extrapulmonary tuberculosis with the involvement of any part of the kidney to the urethra. Predisposing factors associated with the development of extrapulmonary tuberculosis include immunocompromised state, immunosuppressive therapy, prolonged use of steroids, and disease with poor immune mechanisms.

Case 1: Renal TB presented as emphysematous pyelonephritis.

Emphysematous pyelonephritis is an acute necrotic infection of the kidney, which is characterized by the presence of gas in the renal parenchyma. A 65-year-old male with uncontrolled diabetes was admitted with symptoms of pyelonephritis. Imaging revealed gas in the renal parenchyma, and culture showed sterile pyuria. Urine was sent for TB polymerase chain reaction (PCR) and was diagnosed as GUTB. The patient was started and discharged with anti-TB drugs for 8 months and insulin and advised follow-up.

Case 2: Nonfunctioning kidney from renal TB.

A 46-year-old female with a past history of pulmonary tuberculosis completed anti-tuberculosis treatment (ATT) for 6 months, with a 6-month history of recurrent flank pain; renal imaging showed irregular right kidney suggestive of chronic pyelonephritis with intrarenal abscess. An intravenous urogram was done, which showed a nonfunctioning right kidney. She had a right nephrectomy with histology showing features of tuberculosis. The patient recovered with stable renal function.

Case 3: Genitourinary tuberculosis (GUTB) mimicking endometrial carcinoma.

A 64-year-old female with complaints of abdominal pain for 1-month imaging showed a lesion in the endometrium; initially, carcinoma was suspected, and hysteroscopic biopsy curettage was done, which showed inflammatory infiltrate and a sample sent for acid-fast bacilli was positive, and PCR was done, and tuberculosis was confirmed. The patient was discharged with ATT.

Case 4: Tuberculosis (TB) orchitis.

A 44-year-old male with a known case of HIV infection on antiretroviral therapy for 16 years presented with unilateral painful testicular lesions and scrotal changes. Ultrasound-guided fine needle aspiration cytology was done, which resulted in a positive diagnosis of mycobacterium tuberculosis. A left orchidectomy was done, and was started on ATT for 6 months.

Conclusion: Patients from endemic areas who presented with clinical symptoms or signs of GUTB should be investigated without further delay. Early detection prompt and appropriate ATT, patient education, and appropriate long-term monitoring are needed to eradicate GUTB. With early detection and appropriate management, GUTB has a good prognosis and low relapse rate.

Bedaquiline-Related QTC Prolongation in Multidrug-Resistant Tuberculosis Patients: a Prospective Study

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Introduction: India has the highest burden of tuberculosis (TB) patients in the world, with ever-increasing cases of drug-resistant tuberculosis. Bedaquiline, as a part of both short and long oral regimens for treating multidrug resistant-TB (MDR-TB) patients, has contributed to the arsenal of limited options available. However, the Center for Disease Control and Prevention encourages continuous monitoring of patients due to the potential of bedaquiline to cause serious adverse events, including QT prolongation leading to fatal arrhythmias like Torsades de Pointes, ventricular arrhythmias, and sudden cardiac death. This study aims to determine the proportion of MDR-TB patients who developed bedaquiline-related QTc prolongation at the end of 6 months and the severity of this adverse event. It also identifies some of the risk factors that may have contributed to its cardiotoxicity.

Material: This is a prospective analytical study. A total of 50 adult patients aged >18 years diagnosed with rifampicin-resistant (RR) or MDR pulmonary or extrapulmonary TB who were started on either short oral or long oral treatment regimens containing bedaquiline were included in this study.

Their baseline electrocardiogram (ECG) was obtained as a part of the pretreatment evaluation, and baseline corrected QT (QTc) was calculated using the Fridericia formula (QTcF). The ECGs of the same patients were obtained at the 1st, 3rd, and 6th month intervals.

The number and proportion of patients who developed an absolute value of QTcF ≥ 500 ms after 6 months of bedaquiline therapy and those who developed a change in the QTc interval of ≥60 ms from the baseline value were summarized and compared using Chi-squared test. Patients with prolonged QTcF intervals were also graded for severity as per programmatic management of DR-TB guidelines.

Any predisposing factors like old age (>60 years), female gender, low body mass index (BMI), hypocalcemia, and diabetes that may have predisposed to the prolongation of QTc interval were noted.

Observations: 43 RR-TB/MDR-TB patients on Bedaquiline therapy were followed up for 6 months in this study, and it was observed that 18.6% of them developed a significant change in QTc following the treatment. Out of these patients, 75% had a change in the QTc interval of ≥60 ms from the baseline value, while 25% had an absolute QTcF value of >500 ms.

Furthermore, patients who developed a prolonged QTcF, as per the age and gender criteria, were graded for severity, and it was found that out of a total of 17 such patients, 52.9% had mild, 35.2% had moderate and 11.7% had severe prolongation.

Around 35.2% of participants had an increase in the QTc interval after 1 month of introducing the drug, 35.2% after 3 months, and 15.8% after 6 months of therapy.

The study also showed that 87.5% of the patients who had a significant prolongation of QTc had low BMI, 25% of those patients were females, and 12.5% of them had diabetes. Although these risk factors were clinically important, a statistically significant association was not established in the study.

Out of the 50 patients originally included in this study, five were lost to follow-up, and two patients died during treatment. Hence, data from 43 patients was analyzed.

Conclusion: At the end of the study, it was concluded that grade 1 (mild) QTc interval lengthening occurred in most patients, and the onset was mostly seen after one month of bedaquiline therapy. This was closely followed by grade 2 (moderate) QTc prolongation seen at the end of 3 months of therapy, while the incidence of severe QTc prolongation was low.

So even though bedaquiline was quite well tolerated, a considerable number of patients did manifest the cardiac side effects of this drug as nontransient QTc prolongation early into the treatment. This warranted close observation and regular follow-ups with frequent ECG monitoring and electrolyte correction. No overt episodes of arrhythmias or sudden cardiac deaths were, however, reported.

Risk factors like low BMI, diabetes, hypocalcemia, female sex, and old age were all observed to be clinically significant in the management of the patients, and henceforth, aggressive correction of comorbidities was required to overcome the problem and possibly limit the incidence of developing cardiotoxicity in patients on bedaquiline therapy.

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Hidden Menace: Unveiling Brucellosis in a Fever Puzzle

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Clinicians commonly refer to any febrile illness without an initially obvious etiology as a fever of unknown origin (FUO). Most febrile illnesses either resolve before a diagnosis can be made or develop distinguishing characteristics that lead to a diagnosis.

Fever of unknown origin (FUO) is now defined as follows: (1) fever ≥38.3°C (≥101°F) on at least two occasions; (2) illness duration of ≥3 weeks; (3) no known immunocompromised state; (4) diagnosis that remains uncertain after a thorough history-taking, physical examination, and the following obligatory investigations: determination of erythrocyte sedimentation rate and C-reactive protein level; platelet count; leukocyte count and differential; measurement of levels of hemoglobin, electrolytes, creatinine, total protein, alkaline phosphatase, alanine aminotransferase, aspartate aminotransferase, lactate dehydrogenase, creatine kinase, ferritin, antinuclear antibodies, and rheumatoid factor; protein electrophoresis; urinalysis; blood cultures ($n = 3$); urine culture; chest X-ray; abdominal ultrasonography; and tuberculin skin test or interferon γ-release assay.

A 40-year-old male patient without any comorbidities presented with complaints of fever, loss of weight, and loss of appetite for the past 1 month. The patient had a history of recent travel from Singapore to India 15 days back. On examination, findings were unremarkable except for a high-grade fever of more than 102 F every day. Initial laboratory values showed leucopenia with elevated liver enzymes four times the upper limit of normal and hypermagnesemia. In view of the above symptoms, the patient was worked up for tuberculosis (TB) and human immunodeficiency virus (HIV). Computed tomography (CT) chest showed patchy air space opacities, sputum acid-fast bacilli (AFB), and cartridge-based nucleic acid amplification test (CBNAAT) were negative, and HIV was nonreactive. Bronchoalveolar lavage was done, and AFB and CBNAAT on that sample also turned out to be negative. His CT abdomen showed inflammatory perirectal thickening. We suspected abdominal TB and performed a colonoscopy. Histopathology showed chronic nonspecific colitis. All the cultures and serology for PUO were negative. Initially, the patient was treated with third-generation cephalosporins, doxycycline, and aminoglycosides. Despite all these antibiotics, the fever persisted and eventually progressed to pancytopenia with elevated D-dimer, LDH, ferritin, and low fibrinogen. Then, we suspected secondary hemophagocytic lymphohistiocytosis and performed bone marrow aspiration and biopsy, which showed normal hematopoietic elements. So, differential diagnoses for hypermagnesia with normal bone marrow were thought of. There are four infectious causes for pancytopenia with normal marrow—TB, HIV, *Leishmania*, and *Brucella*. Tests for TB and HIV turned out to be negative; the patient didn't have any splenomegaly to suspect leishmania. Then, we investigated for brucellosis. *Brucella* immunoglobulin M and *Brucella* standard agglutination test turned out to be positive. Then, the patient was started on rifampicin and doxycycline for 6 weeks. After the treatment, the patient became afebrile, his symptoms improved, and cell counts improved. Thus, we came to a definitive diagnosis of brucellosis as the cause for pyrexia of unknown origin in this case.

Urine Spot PCR as a Prognostic Marker for Severity of Dengue Fever: a Cross-Sectional StudY

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Introduction: Dengue is an arboviral infection that has various presentations ranging from mild fever to dengue hemorrhagic fever or dengue shock syndrome. Identifying prognostic markers is essential for minimizing fatality during epidemics. In my study, I highlight the importance of using urine spot PCR as a prognostic tool for predicting the severity of dengue fever.

Objective of the study: To observe daily urine spot polymerase chain reaction (PCR) in patients with dengue fever and to use daily urine spot PCR as a prognostic marker for complications of dengue fever.

Materials and methodology: The study was conducted on 100 adult dengue fever patients admitted to medicine wards of Saveetha Medical College and Hospital, Chennai, during the study period of 3 months.

Results: In patients with proteinuria > 560 mg/gm, 21 patients went for dengue hemorrhagic fever (DHF)/dengue shock syndrome (DSS), and only three had no progression. Among those with proteinuria <560 mg/gm, only eight went for DHF/DSS of the total 76. The *p*-value is significant, with a confidence interval of 95%.

Discussion: In our study, the incidence of dengue hemorrhage fever was 19%, and dengue shock syndrome was 21%. The proteinuria above 560 mg/gm occurred in 24 patients, among which 87% went for either dengue hemorrhagic fever or dengue shock syndrome. A total of 10 patients had manifestations of both dengue shock syndrome and dengue hemorrhagic fever. The use of urine spot PCR above 560 mg/gm had a very significant correlation with the development of DHF/DSS. It had a specificity of about 95% and a sensitivity of 72.4%. The test also had a positive predictive value of 87.5% and a negative predictive value of 89.4%.

Conclusion: Risk stratification of individuals with dengue fever is necessary, particularly during epidemic periods. The decrease in platelet count has a modest predictive value in determining the likelihood of developing DHF. Urine proteinuria may serve as an additional parameter for assessing the likelihood of developing both DHF and DSS. The peak of urine proteinuria occurs around the day of hypermagnesemia. Hence, the utilization of urine spot PCR can serve as a prognostic marker for DHF and DSS.

C-Reactive Protein, Lactate Dehydrogenase, and Serum Ferritin as Potential Biomarkers for Predicting the Severity of Dengue Fever

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Introduction: Dengue is the most rapidly spreading febrile illness caused by a *Flavivirus*, and there are 4 distinct but closely related serotypes of the virus that cause dengue: dengue virus (DENV) 1, DENV2, DENV3, and DENV4. It is transmitted by the *Aedes* mosquito. The clinical phenotype can vary from relatively mild self-limiting febrile illness to severe and occasionally life-threatening symptoms of bleeding, organ impairment, and vascular leakage leading to shock. These severe manifestations occur late in the course of disease around defervescence, which usually occurs on days 4–6 following illness onset, to allow a potential window of opportunity to identify patients who may progress. So, there is always a need for biomarkers like C-reactive protein (CRP), lactate dehydrogenase (LDH), and ferritin to predict the severity of dengue fever.

Material: A prospective observational study was conducted in a tertiary care hospital, and patients were divided into dengue with complications (severe dengue) and dengue without complications. Blood samples were sent for necessary investigations, and CRP, LDH, and ferritin levels were recorded on days 1 and 3 of hospital admission. The AUC and *p*-value were calculated for these parameters.

Observation: Out of 50 patients included, 30 patients have severe dengue, and 20 patients have dengue without complication. Of 50 patients, 13 patients developed acute kidney injury (AKI). The area under the curve (AUC) for CRP, LDH, and serum ferritin for AKI were 0.886, 0.870, and 0.941, respectively. Out of 50 patients, 21 patients developed dengue hepatopathy. The AUC for CRP, LDH, and serum ferritin for dengue hepatopathy were 0.882, 0.908, and 0.924, respectively. From 50 patients, four patients developed dengue encephalopathy. The AUC for CRP, LDH, and serum ferritin for dengue encephalopathy were 0.973, 0.984, and 0.910, respectively. Out of 50 patients, eight patients developed dengue shock syndrome (DSS). The AUC for CRP, LDH, and serum ferritin for DSS were 0.836, 0.784, and 0.787. From 50 patients, 22 patients developed dengue hemorrhagic fever (DHF). The AUC for CRP, LDH, and serum ferritin for DHF were 0.919, 0.928, and 0.883, respectively. The *p*-values for CRP, LDH, and serum ferritin were 0.037, 0.686, and 0.364, respectively.

Conclusion: To conclude, this study showed that CRP, LDH, and serum ferritin can be used as a potential biomarker for predicting the severity of dengue fever. However, the *p*-value of LDH is statistically insignificant. However, further studies are needed to reach a definite opinion on the use of these parameters to predict the severity of dengue fever.

Study Of Comparative Evaluation Of Marais Diagnostic Scoring Index, Csf-Cbnaat, And Csf-Adenosine Deaminase In The Diagnosis Of Tuberculous Meningitis

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Introduction: Central nervous system tuberculosis is a serious infection commonly found to occur in developing countries endemic to tuberculosis. Based on the clinical features alone, the diagnosis of tuberculous meningitis (TBM) can neither be made nor excluded with certainty. Unfortunately, there is still no single diagnostic method that is both sufficiently rapid and sensitive. Most factors are found to correlate with poor outcomes and can be directly traced to the stage of the disease at the time of diagnosis. The only way to reduce mortality and morbidity is by early diagnosis, timely recognition of complications, and institution of the appropriate treatment strategies. We compared the evaluation of Marais cerebrospinal fluid (CSF) cartridge-based nucleic acid amplification test (CBNAAT) and CSF adenosine deaminase (ADA) in the diagnosis of TDM.

Material: The study consists of a sample size of 100 cases and is being carried out with inpatients and outpatients of the Department of Medicine, ELMC & H, Lucknow. The participants with clinical features and conventional CSF cytobiochemical analysis in favour of TBM were selected, CSF ADA and CBNAAT were performed, and the Marais Diagnostic Scoring Index was applied to these cases. The evaluation of the three was assessed and compared to diagnose early definitive, probable and possible cases of TBM.

Study design: Cross-sectional observational study.

Result: The estimated mean diagnostic score was 12.7 ± 2.4. A total of 23 (76.7%; 95% CI: 59.1–88.2%) patients were classified as "probable TBM" according to the Marais criteria and seven (23.3%; 95% CI: 11.8–40.9%) as "possible TBM."

Conclusion: The new scoring system proposed in this study can help physicians empirically diagnose TBM; however, a multicentric study is required to ensure that the system is more sensitive and easier to perform in clinical practice.

Burden of ESBL Producing Organisms in uti Among Pregnant Females by Modified Double Disc Synergy Test

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Introduction: Extended-spectrum β-lactamase (ESBL) enzymes, produced by gram-negative bacteria, confer resistance to β-lactam antibiotics, including penicillin, cephalosporins, and monobactams. The rise of antimicrobial resistance due to ESBL-producing bacteria is a pressing concern for public health. Urinary tract infections (UTIs) represent the most common bacterial infection during pregnancy and can lead to adverse maternal and perinatal outcomes if not promptly diagnosed.

The objective of the study is to determine the burden of ESBL-producing bacteria in urine samples among pregnant females by modified double disk synergy test.

Materials: An ongoing prospective study was conducted among antenatal patients over a period of 2 months who were attending the antenatal outpatient department at KCGMC, Karnal. Urine samples were collected using the midstream clean-catch technique and processed further using standard microbiological methods. The samples were cultured on a cysteine, lactose, and electrolyte-deficient agar plate for the semiquantitative bacterial count. A positive urine culture based on the growth of a single uropathogen with > 105 CFU in two consecutive clean samples in asymptomatic bacteriuria (ASB) and >103 CFU/mL in symptomatic UTI patients. Furthermore, phenotypic testing for ESBL production was done by recording the zone diameters of ceftazidime 30 µg and a combination of ceftazidime/clavulanic acid (20 µg/10 µg) on Mueller-Hinton agar plate by disk diffusion testing using CLSI recommended conditions.

Observations: Among 27 antenatal patients with positive urine cultures for bacteriuria, 11 had symptomatic UTI, and 16 had asymptomatic bacteriuria. ESBL-producing organisms are Escherichia coli (11 cases), *Pseudomonas aeruginosa* (three cases), *Klebsiella pneumoniae* (four cases), and one case of multidrug-resistant *Escherichia coli*. Additionally, susceptible strains are *Escherichia coli* (six cases), *Pseudomonas aeruginosa* (one case), and *Proteus mirabilis* (one case).

Conclusion: The prevalence data could be utilized in infection control and in antibiotic use management decisions for developing appropriate intervention strategies.

Clinicoepidemiological Profile and Current Antibiotic Sensitivity Pattern in cases of *Salmonella Typhi* and *Salmonella Paratyphi* from Tertiary Care Hospital in Eastern India: a Retrospective Study

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Introduction: Enteric fever caused by *Salmonella* is a leading cause of undifferentiated fever. Though third-generation cephalosporins are currently the drug of choice in enteric fever, over the years, they have shown increasing drug resistance, particularly evolving multidrug-resistant

1 (MDR1) strains (resistant to chloramphenicol, ampicillin, cotrimoxazole) and extensively drug-resistant 2 strains (resistant to fluoroquinolones, third generation; cephalosporins and MDR), thus putting the clinician in a dilemma over the choice of antibiotics. So, we need to evaluate the current antibiotic resistance pattern in our area, which would help us reduce fever defervescence.

Methodology: We conducted a retrospective cross-sectional study of blood culture-positive patients for *Salmonella typhi* (*S. typhi)* and *Salmonella paratyphi* (*S. paratyphi)* between January 2022 and June 2023. In these patients, all the demographic data on empirical antibiotic therapy was analyzed. The analysis of antimicrobial susceptibility was done as per Clinical and Laboratory Standards Institute interpretative guidelines. All the parameters were compared using the Mann–Whitney *U* test.

Result: Out of total cases (n = 235), the incidence of *S. typhi* was 39 (28.6%), and *S. paratyphi* was 196 (71.4%). The average defervescence in patients taking combined ceftriaxone and azithromycin was 3.8 days + 1.64 SD, and ceftriaxone alone was 5.15 days +1.7 SD, which was statistically significant (p-value = 0.03). Total MDR strains were 47 cases (20%),16 in *S. typhi* (40%), 31 in *S. paratyphi* (12%), and XDR were 40 cases (17.1%), 13 in *S. typhi* (33.3%) and 27 in *S. paratyphi* (12%) which was significant. Ceftriaxone was resistant in 20 cases (8.6%)—four in *S. typhi* (10%) and 16 in *S. paratyphi* (8%). Azithromycin is sensitive in all cases (100%).

Conclusion: Our study showed a majority of culture positive for *S. paratyphi* rather than *S. typhi*. Third-generation cephalosporins were found to be resistant to *S. typhi*/*S. paratyphi*. Threatening data showed a rise in the number of XDR cases of enteric fever, which is alarming to physicians. We recommend a combination of azithromycin and ceftriaxone than ceftriaxone alone if the fever doesn't subside within 3 days.

Dual Infection: Disseminated Cysticercosis with Tubercular Meningitis in an Immunocompetent HosT

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Introduction: Tuberculosis (TB) is the most prevalent infection in India. Tubercular meningitis (TBM) is one of the most severe presentations, with an incidence rate of 5% of all TB infections and a mortality rate of 20-30% in TBM without human immunodeficiency virus (HIV) infection. However, it can be as high as 50–60% in TBM with HIV infection. Cysticercosis is caused by the ingestion of *Taenia solium* eggs after consuming undercooked pork or contaminated water. Neurocysticercosis is the most common cause of an active seizure disorder in Southeast Asia. There have been several interesting case series on both these infections, but dual infections have very few case reports. We present a case of dual infection in an immunocompetent host.

Case report: A 47-year-old male patient with no significant comorbidity presented with fever, vomiting, abnormal body movements, and altered sensorium. On examination, the patient's vitals were stable; he was drowsy and had neck rigidity, along with other signs of meningeal irritation.

Cerebrospinal fluid (CSF) analysis: Total leukocyte count: 50 cells, polymorphonuclear neutrophils: 5%, lymphocytes: 95%, glucose: 42 mg/dL, total proteins: 250.5 mg/dL, CSF culture: negative, and CSF cartridge-based nucleic acid amplification test for TB had mycobacterium tuberculosis detected. Contrast-enhanced magnetic resonance imaging brain—diffusely scattered multiple cystic lesions with a scolex within noted in bilateral cerebral and cerebellar cortex (in varying stages of development), with similar cysts in extracranial locations, suggestive of disseminated cysticercosis infection along with the presence of leptomeningeal inflammation.

Musculoskeletal ultrasonogram showed the presence of dissemination of cysticercosis to the right inferior recti muscle, tongue, muscles of mastication, scalp, left temporalis, lower lip, and nape of the neck. The patient was initially managed on steroids and antiepileptics. Then subsequently, antitubercular treatment regime and cysticidal drug were added. The patient was kept under observation for a week where he improved clinically and remained seizure-free.

Conclusion: This is a rare case of co-infection of TBM and disseminated cysticercosis. Both diseases can cause solitary or multiple ring-enhancing lesions in the central nervous system, and it becomes all the more important to distinguish them, as management and prognosis are different for both diseases.

Tuberculous Meningitis: an Institutional Experience

Nithesh Babu Ramesh

Background: Tuberculous meningitis (TBM) is a severe form of extrapulmonary tuberculosis with high morbidity and mortality. Early diagnosis and management can significantly improve outcomes.

Table 1: Baseline investigations

Investigation	*Findings*
Hemoglobin	7.9 g/dL (13-16 g/dL)
Total Leucocyte count	6.63 cells/uL (4000-11000/uL)
Platelet count	640 x 103 /ul (150 x 103 – 450 x 103/ul)
Total Protein	8.32 g/dL (6.6 -8.3 g/dL)
Serum Albumin	1.98 g/dL (3.5-5.2 g/dL)
24 Hour Urinary Protein	3105 mg/day (<100mg/day)
Urine ACR	3298 mg/gm (30-299mg/gm)
ESR	120 mm/hr (0-20 mm/hr)
Immunofixation Study	Immunofixation electrophoresis reveals IgM-Lambda monoclonal gammopathy.
Kappa, Free light chain	44.26 mg/L (3.3-19.4)
Lambda, Free Light chain	198.88 mg/L (5.71-26.30)
Kappa/Lambda (FLC) ratio	0.223 (0.26 – 1.65)
Beta-2 Microglobulin	4374 ng/mL (609-2366 ng/mL)
Bone Marrow biopsy	Features are of plasma cell dyscrasia, suggestive of bone marrow infiltration of lymphoplasmacytic lymphoma
Abdominal fat pad biopsy	Findings are consistent with amorphous eosinophilic deposits which are hypermagnes and shows apple green birefringence on polarizing microscopy. IHC for kappa and lambda showed Lambda chain restriction.
IgG	1300 mg/dL (650 – 1600 mg/dL)
IgM	2795 mg/dL (50-300 mg/dL)
IgA	134 mg/dL (40 – 350 mg/dL)

ALT: alanine transaminases; AST: aspartate transaminases; ESR: Erythrocyte Sedimentation rate; ACR: Albumin Creatinine Ratio; IHC: Immunohistochemistry; FLC: Free Light chain assay

Aim: To describe the clinical presentation, investigations, management, and outcomes of patients diagnosed with TBM in a tertiary care center in South India.

Material and Methodology: A retrospective case series of 15 patients diagnosed with TBM. Data were collected on demographics, comorbidities, clinical features, investigations, treatment, and outcomes.

Results: The age range was from 14 to 66 years, with a near-even distribution between males and females. Common comorbidities included hypertension, type 2 diabetes mellitus, and chronic kidney disease. Major clinical presentations included fever, altered sensorium, headache, neck stiffness, vomiting, seizures, and urinary incontinence. Most patients had normal electrocardiogram and chest X-ray/computed tomography thorax findings. Magnetic resonance imaging brain findings varied, with many showing meningeal enhancements, tuberculomas, hydrocephalus, and infarcts. Cerebrospinal fluid (CSF) analysis often indicated lymphocyte-predominant pleocytosis, elevated adenosine deaminase, and high protein levels. GeneXpert was positive in several cases. The majority of patients were treated with antitubercular therapy. Few required neurosurgical interventions. Outcomes ranged from recovery with follow-ups, neurological deficits, to being declared (presumably deceased).

Conclusion: TBM continues to be a significant health issue, with varied presentations and outcomes. Early diagnosis through clinical presentation, imaging, and CSF analysis, followed by appropriate treatment, remains crucial for better patient outcomes.

A Study of Serum Magnesium Levels in People Living with HIV on Antiretroviral Therapy

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Introduction: The rise in life expectancy due to antiretroviral therapy (ART) in individuals with human immunodeficiency virus (HIV) has increased the prevalence of chronic medical conditions, such as kidney disease. Kidney disease prevalence in individuals with HIV infection is reported between 3.5 and 48.5%. Second-generation integrase strand transfer inhibitors (INSTIs) are currently the class of choice in ART regimens due to their high potency, good tolerability, low toxicity, and high genetic barrier to resistance. INSTIs are believed to work by chelating magnesium ions to prevent HIV from integrating into host DNA. Magnesium is involved in the regulation of mitochondrial function, the inflammatory process, immune defense, allergy, growth, stress, and the control of neuronal activity, cardiac excitability, neuromuscular transmission, vasomotor tone, and blood pressure. Magnesium is an intracellular component of bone cells. Several studies have reported changes in bone density accompanied by changes in serum levels of phosphate, alkaline phosphate, and serum magnesium. Thus, this study is being conducted to estimate the serum magnesium levels in people living with HIV on ART.

Materials: This case-control study was performed among 25 people living with HIV on ART and 25 age- and sex-matched controls attending the Department of General Medicine, Kempegowda Institute of Medical Sciences during an 18-month period. Serum magnesium levels were evaluated among all the cases and controls. The data were collected and compiled in MS Excel. Descriptive statistics have been used to present the data. To analyze the data, statistical package for the social sciences (Version 26.0) was used. The significance level was fixed at 5% ($\alpha = 0.05$). Qualitative variables are expressed as frequency and percentages, and quantitative variables are expressed as mean and standard deviation. To compare the association between numerical and categorical variables, the student t-test was used, and to compare the association between categorical variables, the Chi-squared test was used.

Observation: The mean age of the cases and controls was found to be 49.32 ± 7.587 and 49.28 ± 7.531, respectively. Eighty-four percent of the study participants in each group were males. Four percent of the study participants in each group had type 2 diabetes mellitus. The mean duration of ART among the cases was found to be 13.48 ± 4.736 months. The mean serum magnesium among the cases and controls was found to be 1.7188 ± 0.238 and 2.0300 ± 0.232, respectively. The mean serum magnesium levels were found to be lower among the cases than the controls with statistical significance ($p < 0.05$).

Conclusion: Serum magnesium levels should be routinely checked among all HIV patients to prevent bone complications. Serum bone profiling is a potentially noninvasive, inexpensive method that can be used routinely to detect changes in bone metabolism in HIV-infected patients.

Comprehensive Analysis of *Burkholderia Cepacia* Infections: Clinical Profiles, Antibiotic Susceptibility, and Treatment Outcomes

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Background: *Burkholderia cepacia*, an opportunistic pathogen known for its intrinsic antibiotic resistance, presents a significant clinical challenge, particularly in immunocompromised patients. This study aims to evaluate the clinical impact of diverse antibiotic regimens in *Burkholderia cepacia* infections, encompassing various culture sources. Our objective is to inform the development of more effective treatment strategies by considering antimicrobial susceptibility patterns.

Methods: A single-center retrospective cohort study was conducted at a Tertiary Care Hospital in Odisha, India, covering 84 adult patients with *Burkholderia cepacia* infections, including bacteremia, urine, bile, and other culture sources, between April 2022 and July 2023. Data included patient demographics, comorbid conditions, healthcare exposures, clinical features, infection sources, prescribed antimicrobial therapies, and clinical outcomes. Descriptive statistics were employed for cohort characterization, and logistic regression identified factors associated with 30-day mortality.

Results: The study cohort, with an average age of 50.64 years, comprised 49 males and 35 females. Comorbidities, including diabetes (38%), cancer (10%), chronic lung disease (26%), and immunocompromised states (38%), were prevalent. A majority of patients (63%) had prior healthcare exposure, including hospitalization (63%) and ICU stays (27%). Central venous catheters (42%) and Foley's catheters (85%) were common invasive devices. Clinical presentations included fever (58%) and altered mental status (48%). Infections originated from various sources, with bloodstream (33%) and respiratory sources (20%) being most common. Antimicrobial susceptibility exhibited diverse patterns. Notable susceptibilities included meropenem (56%) and cotrimoxazole (79%). Conversely, cefepime (6%) and aztreonam (1%) demonstrated limited efficacy. Resistance was observed, particularly against ciprofloxacin (71%) and imipenem (96%). Preferred antibiotics included meropenem (43%) and cotrimoxazole (19%), with an average duration of antimicrobial therapy of 10.31 days. ICU admission was required for 64% of patients, with 42% necessitating vasopressor support. The average hospital stay was 14.41 days, with a mortality rate of 20%, and clinical cure achieved in 71% of cases.

Conclusion: This comprehensive study provides valuable insights into the clinical and microbiological dimensions of *Burkholderia cepacia* infections, emphasizing the need for tailored antibiotic therapy based on susceptibility patterns. The findings underscore the significance of early and appropriate antimicrobial interventions to enhance clinical outcomes and hold implications for refining treatment guidelines for infections caused by this challenging pathogen.

Immunology

Dengue-Induced Hemophagocytic Lymphohistiocytosis in Sickle Cell Anemia: a Case Report

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Introduction: Hemophagocytic lymphohistiocytosis (HLH) is a severe hyperinflammatory syndrome induced by aberrantly activated macrophages and cytotoxic T-cells. Secondary HLH is commonly triggered by infections or malignancies but may be induced by autoinflammatory/autoimmune disorders when it is known as macrophage activation syndrome.

Case report: We present a case involving a 22-year-old male, known to have sickle cell anemia for 1 year, not on any medication, who presented to our center with complaints of fever for 7–10 days along with generalized weakness and easy fatigability. On investigation, the fever was initially attributed to dengue, but even after 10 days of admission, it didn't subside. The initial picture of sepsis, *Enterococcus*-related, which later responded to doxycycline, subsequently evolved into pancytopenia. After ruling out other causes of pancytopenia such as vitamin B12 deficiency, folate deficiency, and parvovirus B19, a bone marrow study revealed hemophagocytosis. The patient was treated with culture-sensitive doxycycline, antipyretics, hydration, and symptomatic treatment and was finally discharged.

Investigations: **See Table**

Hb/TLC/ Plt	*4.8/1500/40000*	*LDH/folate*	*821(H)/5.3 ng/ dL (N)*
PS	Dimorphic anemia with normocytic normochromic RBCs with moderate Anisopoikilocytosis with few macrocytes, fragmented cells	Fibrinogen	506 ng/mL (N)
Dengue NS1/IgM	Positive	ANA/ DCT/ICT/ Parvovirus B19	Negative
TSB/DSB	1.36/0.66	IPF	17.8%
AST/ALT	109/261	Ferritin	3365 (H)
Hep A/E/B/C, HIV	Negative	Triglycerides	204 mg/dL
Urea/ creatinine	22/0.27	Bone marrow study	Hypercellular with erythroid hyperplasia and dyserythropoiesis suggestive of hemolytic anemia with increased histiocytes and few hemophagocytes
Urine/ blood C/S	Enterococcus sensitive to doxycycline/sterile	USG W/A	Cholelithiasis with thick-walled edematous gall bladder, splenomegaly

ALT, alanine transaminases; ACR, albumin creatinine ratio; AST, aspartate transaminases; ESR, erythrocyte sedimentation rate; FLC, free light chain assay; IHC, immunohistochemistry

A Case of Amyloidosis Associated with Waldenström Macroglobulinemia and Immunoglobulin M Monoclonal Gammopathy: a Rare Entity

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Background: Waldenström macroglobulinemia (WM) is a clinicopathologic entity characterized by infiltration of the bone marrow by clonal lymphoplasmacytic cells and the presence of monoclonal **immunoglobulin M (**IgM) gammopathy. The most common form of amyloidosis associated with IgM paraprotein is AL amyloidosis. Only in 5–7% of patients with light and/or heavy chain amyloidosis is IgM paraprotein implicated. However, data regarding AL amyloidosis in WM is sparse. Despite its rare presence, it is crucial to recognize amyloidosis because it is a major cause of morbidity in patients with WM alone, and can be easily diagnosed by minimally invasive methods such as subcutaneous fat aspirate or bone marrow studies. Here, we report a case of AL amyloidosis in newly diagnosed Waldenström macroglobulinemia.

Case: We report a case of a 60-year-old female presented with chief complaints of generalized weakness, lethargy, and pedal edema for 3 months. The patient had anemia with low albumin and high globulin levels. Urine examination revealed proteinuria (3+) and high 24-hour urinary protein levels (3105 mg/day). Urine albumin-creatinine ratio was 3298 mg/g. Ultrasound of kidney and urinary bladder revealed normal kidney size with preserved corticomedullary differentiation. Serum protein electrophoresis revealed an M band with immunofixation showing IgM lambda monoclonal gammopathy. Bone marrow aspiration and biopsy revealed findings consistent with Waldenström macroglobulinemia. In view of albuminuria with normal kidney size and lambda gammopathy, the patient was evaluated for amyloidosis. Abdominal fat pad biopsy revealed congo-philic deposition and showed apple-green birefringence, which on immunohistochemistry showed lambda restriction. Thus, the diagnosis of WM with AL amyloidosis was made.

Conclusion: It is imperative to recognize amyloidosis in patients diagnosed with WM as it can be a major cause of morbidity in these patients. Lambda monoclonal gammopathy, nephrotic-range proteinuria with preserved kidney size, diastolic dysfunction (in trans-thoracic echocardiography) of the heart, along with specific changes in cardiac magnetic resonance imaging, can further increase suspicion for amyloidosis. Diagnosis can be confirmed by noninvasive procedures like abdominal fat pad and bone marrow aspiration and biopsy.

A Rare Case of Panhypopituitarism as an Initial Presentation of Granulomatosis With Polyangiitis

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Introduction: Pituitary involvement is extremely rare in granulomatosis with polyangiitis (GPA), and only a few cases have been reported to date. Granulomatous hypophysitis (GRH), an uncommon entity, usually presents with chronic inflammation of an enlarged pituitary gland.

Case report: An 18-year-old female presented with a 2-week history of multiple episodes of vomiting, along with gradually worsening headache, polyuria, lethargy, and vision abnormalities. She was found to have low cortisol levels, negligible thyroid-stimulating hormone levels, low follicle-stimulating hormone and luteinizing hormone levels, low insulin-like growth factor-1 levels, along with mild hyperprolactinemia. She had marked hypernatremia with low urine osmolality and low plasma vasopressin levels. 24-hour urine output was 5500 mL with a normal serum osmolality, markedly low urine osmolality, and urine specific gravity of 1.005. Her ophthalmological examination revealed a bitemporal hemianopia and recent worsening of visual acuity to 6/24 in both eyes.

Magnetic resonance imaging (MRI) of the brain revealed an enlarged pituitary gland measuring 19 × 15 × 13 mm with a cystic area (T1 hypointense and T2 hyperintense) and a solid component showing post-contrast enhancement within the substance of the pituitary. Pituitary contrast study revealed peripheral rim enhancement of the pituitary gland.

On surgical exploration of the pituitary through a transsphenoidal approach, pus-like material was drained out of the sellar cavity, with the pituitary gland left intact.

Routine examination of the fluid revealed an inflammatory picture with a negative GeneXpert and culture. Histopathological examination of tissue from the sellar region revealed a granulomatous picture.

Tests for sarcoidosis and tuberculosis were negative. Her autoimmune workup revealed strong positive cytoplasmic antineutrophil cytoplasmic antibodies levels (PR 3 ANCA) at 134 IU/mL (normal ≤ 20).

She had no other symptoms and signs of respiratory, renal, skin, or ear, nose, and throat (ENT) involvement. She was diagnosed as a case of GRH secondary to granulomatosis with polyangiitis. She responded very well to steroids with near complete resolution of her symptoms.

Conclusion: To conclude, we present an unusual case of Wegener's granulomatosis with hypophysitis as a sole initial presentation, which showed excellent response to treatment with steroids. The presence of the isolated disease and characteristic MRI features, such as a diffusely enlarged pituitary gland, a relatively normal sized sella, a thickened stalk, and enhancement of the pituitary rim, allowed timely diagnosis of this autoimmune condition. Pituitary involvement can occur in a very small subset of patients with GPA. It typically presents as pituitary hormonal dysfunction and/or abnormal sellar imaging.

Pituitary disease is usually accompanied by other organ involvement, most commonly ENT, but on rare occasions can be an isolated finding. Diabetes insipidus is potentially reversible in a large proportion of these patients.

A Case of Organ-Restricted Hypereosinophilic Syndrome

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Introduction: Hypereosinophilic syndrome (HES) is characterized by the presence of hypereosinophilia, defined as an absolute eosinophil count (AEC) greater than 1.5 × 10^9/L on two separate occasions at an interval of one month, accompanied by eosinophil-mediated organ damage or dysfunction, after excluding other potential causes. Organ-restricted HES is specified by single organ involvement with eosinophils either greater than or <1.5 × 10^9/L.

Methodology: A 57-year-old female, known case of asthma on triple therapy and hypertension, presented with a 3-month history of weight loss, skin swelling, lip swelling, and perioral region swelling, along with dysphagia for solids in the last 4 days. Chest examination revealed scattered crepitations. Laboratory investigations showed leukocytosis (34,700) with eosinophilia (76.6%) and an AEC of 26.6 × 10^9/L. Immunoglobulin E (IgE) levels were elevated, and pulmonary function tests revealed a restrictive pattern. Chest X-ray exhibited increased bronchovascular markings, while contrast-enhanced computed tomography (CECT) of the chest revealed features of interstitial lung disease. The cervical esophagus, thoracic esophagus up to the esophagogastric junction, and the antepyloric region of the stomach showed minimal circumferential wall thickening, likely inflammatory, as per CECT findings. CECT of the neck and cervical spine showed enhancing thickening of the posterior pharyngeal wall, pyriform fossa, and cricopharynx. Endoscopy revealed concentric rings with biopsy confirming eosinophilic esophagitis. An antral biopsy indicated *Helicobacter pylori*-associated chronic gastritis and tissue eosinophilia in duodenal biopsy. Esophageal manometry and echocardiography were normal. Extensive investigations for other causes of HES, including a FISH panel for eosinophilia, PDGFR α and β, FGFR1 mutation, abdominal ultrasound, C3, C4 levels, ANA, ANCA profile, and stool routine were negative.

This case had predominantly gastrointestinal (GI) complaints with blood and tissue eosinophilia, elevated IGE, without any other identifiable etiologies. Patient was empirically treated with diethylcarbamazine, ivermectin, albendazole and on IV steroids followed by oral steroids. She improved symptomatically and on lab parameters subsequently.

Conclusion: Following the exclusion of other causes of hypereosinophilia, idiopathic or organ-restricted HES should be considered. This case represents GI-restricted HES with blood and tissue eosinophilia, elevated IgE levels, and without any identifiable etiologies. The patient demonstrated significant improvement in symptoms and laboratory parameters following empirical treatment.

Metabolism

Familial Hypomagnesemia with Secondary Hypocalcemia–TRPM6 Mutation

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Introduction: Familial hypomagnesemia with secondary hypocalcemia is an autosomal recessive inherited condition affecting magnesium metabolism, characterized by abnormally low serum magnesium and calcium levels. This disorder typically manifests with refractory seizures during early infancy, and if not adequately treated, it may lead to recurrent seizures. The condition is attributed to missense and nonsense mutations in the genes responsible for encoding transient receptor potential cation channel (subfamily) M member 6 (TRPM6).

In this report, we present a case of a young adult female with a history of recurrent seizures persisting from infancy into early adulthood. The seizures were successfully managed with a high dose of magnesium. Genetic analysis uncovered a homozygous nonsense mutation in exon 9 of the TRPM6 gene.

Case report: A 23-year-old female, known for a seizure disorder, presented with generalized tonic-clonic seizures (GTCS) characterized by the uprolling of the eyeballs and postictal confusion lasting for 2 minutes. The patient also experienced involuntary micturition and tongue biting during the seizures. There was no history of fever, vomiting, or headache preceding the seizure episode.

Past history: The first episode of seizure was traced back to the early neonatal period.

On day 7 of birth, the patient had an episode of focal seizure-like activity involving the right upper and lower limb with rolling

of eyeballs. At that time, the patient was diagnosed to have hypocalcemic seizures and was prescribed syrup calcium and phenobarbitone.

At 1 year of age, the patient was admitted again with multiple episodes of seizures. Neurological examination was normal. Capillary blood glucose: 78 mg/dL, Na+: 138 mEq/L, K+: 3.8 mEq/L, calcium: 6.3 mg/dL, serum magnesium: 1.3 mEq/L, serum phosphate: 6 mg/dL, urine calcium creatinine ratio < 0.1, USG KUB: normal, and electroencephalography (EEG): normal. The patient was treated with IV calcium gluconate, IV magnesium sulfate, and was started on syrup calcium, syrup phenobarbitone, and syrup phenytoin.

At 13 years of age, the patient again had one episode of GTCS. Calcium: 6.8 mg/dL, magnesium: 0.5 mg/dL, PTH: 7 pg/mL, VIT D2: 52 ng/mL, phosphorus: 6.6 mg/dL, TSH: 4.7 mIU/mL. The patient was treated with IV calcium, IV magnesium, VIT D3, and was discharged with oral supplements and tab sodium valproate.

At 16 years of age, the patient again had multiple episodes of seizures. On evaluation, CBG: 85 mg/dL, Na+: 139 mEq/L, K+: 3.7 mEq/L, calcium: 8.3 mg/dL, magnesium: 0.4 mg/dL, after treatment with IV calcium and magnesium supplements, the patient was discharged with oral calcium, magnesium tablets, tab valproate, and tab levetiracetam.

Birth history: Second born out of a second-degree consanguineous marriage, term child, normal vaginal delivery, birth weight: 3.1 kg, and vaccination done.

General examination, on presentation, the patient was conscious, obeyed oral commands, afebrile, with no facial dysmorphism, neurocutaneous markers, and meningeal abnormalities.

Neurological examination was unremarkable with normal higher mental function, cranial nerves, sensorimotor, and cerebellum examination.

Laboratory work up:

Parameters	*Levels*	*Normal range*
Serum calcium	6.8 mg/dL	8.5–10.5
Serum creatinine	0.5 mg/dL	0.7–1.3
Serum magnesium	0.6 mg/dL	1.7–2.4
Serum phosphorus	3.2 mg/dL	2.5–4.5
Serum sodium	132 mEq/L	135–145
Serum potassium	4.2 mEq/L	3.5–5.5
Alkaline phosphatase	214 U/L	60–300
Intact PTH	16 pg/mL	15–65
Calcium: creat ratio	0.01	<0.14
Fractional excretion of magnesium	1.9%	–

Electroencephalography (EEG) showed diffuse slowing of waves.

Magnetic resonance imaging brain—bilateral lentiform nucleus hyperintensities.

Pure tone audiometry—within normal limits, no evidence of hearing loss.

The most common causes for genetic magnesium wasting syndromes: Bartter and Gitelman, were ruled out, as there is no metabolic alkalosis, hypokalemia, or hypermagnesiuria. FHHNC was ruled out since there is no hypercalciuria and nephrolithiasis. EAST/SeSAME syndrome was ruled out, as there is no hypokalemic alkalosis and hearing loss.

At this point, hypomagnesemia with secondary hypocalcemia was suspected. Whole-exome sequencing was sent. It revealed a homozygous nonsense variation in exon 9 of the TRPM6 gene. Hence, the diagnosis of hypomagnesemia with secondary hypocalcemia was confirmed.

Miscellaneous

Clinical Profile and Relevance of Asymptomatic ECG Changes in Lowlanders in High Altitude Area

Atul A Jha

Aim: To study the significance of electrocardiogram (ECG) changes in healthy lowlanders during ascent to high altitude (HA) and analyze the ECG changes along with cardiac risk scores.

Methods: An observational study was carried out in a tertiary center of North-East India over nine months among individuals who were evacuated due to ECG abnormalities. All subjects underwent standardized cardiac evaluation to assess the significance of the changes.

Results: A total of 46 male subjects who were evacuated from HA were included and evaluated for cardiac disease in a phased manner. All subjects whose ECG reverted to normal on descent had a normal cardiac evaluation. However, in subjects with persistent changes after descent (n = 25), four (16%) had an abnormal treadmill test, one (4%) had an abnormal echocardiography, and one (4%) had significant disease on angiography.

Conclusion: Electrocardiogram (ECG) changes are common in individuals ascending to HA. While some ECG changes may be sinister and mandate investigations, most spontaneously revert to normal on descent and may not indicate clinically significant situations. It is important to note that risk scores are crucial for assessing the risk of heart disease. Analyzing ECG changes along with the risk profile may be useful in the interpretation of the ECG.

Gastric Ultrasound Guided Noninvasive Ventilation in Altered Hypertensive Cardiogenic Pulmonary Edema: A Case Report

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Introduction: Gastric point-of-care ultrasound (G-POCUS) has emerged as an evolving imaging paradigm, demonstrating 100% sensitivity and 98% specificity. It has garnered the attention of physicians dealing with acute emergencies, particularly for aspiration risk assessment during rapid sequence intubation. We extended its application by incorporating G-POCUS with noninvasive ventilation (G-NIV) for patients with altered hypertensive cardiogenic pulmonary edema.

Materials: A 70-year-old male patient with a known history of coronary artery disease and systemic hypertension presented to the hospital with complaints of breathlessness for 4 hours (NYHA grade 3), progressively worsening. On arrival, the Glasgow Coma Scale was 15/15. Blood pressure was measured at 200/100 mm Hg, pulse rate at 110/minute, respiratory rate at 34/minute, room air oxygen saturation (SpO_2) at 84%, and capillary blood glucose at 158 mg/dL. The patient was shifted to the medical intensive care unit and initiated on nitroglycerine infusion, NIV, and diuretics. After 2 hours, the patient became restless, irritable, and experienced a drop in sensorium. Gastric ultrasound was performed, visualizing an empty gastric antrum, indicating a low risk of aspiration. The patient was then continued on NIV support with intensive monitoring. After 8 hours, the patient's sensorium improved, and gradual weaning off from NIV was initiated on subsequent days. G-NIV proved effective in avoiding intubation and associated complications.

Observation: Altered sensorium, a common contraindication for the use of NIV in acute cardiogenic pulmonary edema, can be addressed with the use of gastric ultrasound (G-POCUS). G-NIV allows the assessment of total gastric volume and contents, facilitating the appropriate selection of patients for a trial of NIV and, consequently, avoiding intubation and related complications.

Conclusion: Trial of NIV can still be tried in patients with altered hypertensive pulmonary edema patients with the use of gastric ultrasound. Appropriate patient selection for G-NIV decides the patient's outcomes. Thus G-POCUS and G-NIV can avoid intubation and intubation related complications.

Understanding the Novel MCM8 Gene Mutation: A Case of Primary Ovarian Insufficiency and Uterine Agenesis in Two Sisters

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Premature ovarian insufficiency is a significant factor contributing to female infertility and is characterized by the loss of normal ovarian function before 40 years of age. Recent research has shown mini chromosome maintenance complex component 8 (MCM8) to be a key contributor to this condition. We present a case of two female siblings aged 24 years and 19 years who presented with short stature and the absence of menarche. Both patients were thin-built and short for age with absent secondary sexual characteristics. The elder sister also had complaints of recurrent pneumonias since childhood. Hormonal profiles of both patients revealed hypergonadotropic hypogonadism, while skeletal survey showed delayed bone age. Karyotyping revealed a 46XX phenotype. Contrast-enhanced computed tomography (CECT) chest of the elder sister showed cylindrical, varicoid, and cystic bronchiectasis with mucus plugging, while CECT chest of the younger sibling was a normal study. Magnetic resonance imaging (MRI) pelvis of both patients revealed underdeveloped and small uterus with the absence of bilateral ovaries and fallopian tubes. MRI brain was normal. Whole Exome sequencing followed by Sanger sequencing by Next-generation sequencing was carried out for both patients, and it revealed a homozygous mutation in MCM8 gene on exon 8, variant c.808C > T inherited in an autosomal recessive manner. They were thus diagnosed as primary ovarian insufficiency due to a novel variant of MCM8 gene mutation and are on regular follow-up.

Association Between Hypomagnesemia And Coagulopathy in Sepsis

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Introduction: Sepsis is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection. Magnesium reportedly has immunomodulatory effects and is associated with the dysregulated host response to infection and the pathophysiology of sepsis. Previous studies reported that hypomagnesemia was associated with lactic acidosis in sepsis, an increased incidence of sepsis or septic shock in critically ill patients, and increased mortality in sepsis.

Thus, this study is being conducted to explore the association between serum magnesium levels and coagulopathy in sepsis outcomes.

Materials: This cross-sectional study was performed on 40 sepsis cases admitted in intensive care unit, Kempegowda Institute of Medical Sciences during a 12-month period. The SOFA score was calculated, and serum magnesium levels were estimated.

Sepsis cases were categorized based on serum magnesium levels as low, normal, high on the day of the diagnosis of sepsis. International Society on Thrombosis and Haemostasis criteria will be used for the diagnosis of overt disseminated intravascular coagulation (DIC)/ coagulopathy in sepsis cases during the course in the hospital. Serum magnesium levels were independently associated with both coagulopathy/DIC and the clinical outcome of sepsis cases. The data was collected and compiled in MS Excel. Descriptive statistics have been used to present the data. To analyze the data, Statistical Package for the Social Sciences (Version 26.0) was used. The significance level was fixed at 5% ($\alpha = 0.05$). Qualitative variables are expressed as frequency and percentages, and quantitative variables are expressed as mean and standard deviation. To compare the association between numerical and categorical variables, student t-test was used.

Observation: The mean age of the study participants was found to be 58.75 + 17.299. 75% of the study participants were males. The mean serum magnesium levels were found to be 1.8798 + 0.56902. 67.5% of the study participants had low-grade DIC, and 32.5% of the study participants had overt DIC. The mortality rate in the present study was found to be 35%. The mean Serum magnesium of the study participants with overt DIC was found to be lower than low-grade DIC study participants (1.37 + 0.47 vs 2.12 + 0.44; p-value = 0.000). The mean serum magnesium of the study participants who died was found to be lower than that of study participants who were discharged (1.59 + 0.60 vs 2.03 + 0.49; p-value = 0.019).

Conclusion: Hypomagnesemia was found to be inversely related to DIC in sepsis patients. Consequently, the treatment of hypomagnesemia may be a viable therapeutic approach for the management of coagulopathies in sepsis.

Nephrology

Renal Allograft Dysfunction

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Introduction: One of the varied adverse effects of halogen-based anesthetic agents is malignant hyperthermia. Although a comparatively safer anesthetic agent, isoflurane has been known to induce this peculiar effect in patients with compromised functions of the liver, heart, and particularly the brain.

Materials: Diagnosis is primarily based on clinical signs (10°C/ hour rise in body temperature, tachycardia, tachypnea, a rise in creatinine kinase levels, serum cholinesterase levels, derangements in red blood cells, white blood cells, and platelets), the presence of myoglobinuria, and organ biopsy in case of organ failure.

Observation: We present the case of a 38-year-old gentleman with end-stage renal disease on maintenance hemodialysis since 2010, with no previous history of allergy/reaction to anesthesia. He was posted for ABO-compatible live-related renal allograft transplant, induced with isoflurane and succinylcholine. The patient developed tachycardia, tachypnea, hyperthermia, hematemesis, and bleeding from the epidural site.

Conclusion: Managed with paracetamol infusion, the patient had a urine output of 1.3L immediately postoperative with creatinine of 8.0 mg/dL on postoperative day 2. Although the

patient had a normal evaluation except for raised creatinine kinase, renal biopsy showed pigment cast nephropathy.

Comparison of Serum Interleukin-6 and Albumin Levels in Patients Undergoing Twice-Weekly And Thrice-Weekly Maintenance Hemodialysis: a Comparative Study

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Introduction: Chronic kidney disease is characterized by the presence of protein in the urine or a decrease in the glomerular filtration rate. As an inflammatory cytokine, interleukin (IL)—6 is an inflammatory mediator commonly involved in various conditions, such as infection, autoimmune disease, and cancer. In chronic kidney disease (CKD) patients undergoing dialysis (HD), elevated serum IL-6 levels beginning from the start of the treatment are a strong predictor of morbidity and mortality. The study aimed to assess the association between hemodialysis (twice and thrice weekly) and IL-6 and serum albumin levels.

Materials: The present prospective observational, comparative, cross-sectional study was conducted on chronic kidney disease patients on twice and thrice weekly hemodialysis. A total of $n = 64$ patients were recruited in the study and divided into two groups: twice-weekly group ($n = 32$) and thrice-weekly ($n = 32$). The detailed history, clinical investigations, and demographic details of all the subjects were obtained. Blood samples were collected from all patients and subjected to laboratory assessment.

Observation: The mean age of patients in the twice and thrice-weekly group was comparable (44.33 ± 11.18 years vs 46.71 ± 15.34 years, $p > 0.05$). In both groups, the majority of subjects were male (62.81 and 64.28%). The mean serum albumin in thrice-weekly patients was less compared to twice-weekly group patients; however, the difference was statistically insignificant. IL-6 was found to be increased in thrice-weekly patients than twice-weekly patients, but the difference was statistically insignificant. A significant association was found between hemodialysis (twice and thrice weekly) and IL-6 and serum albumin levels ($p < 0.05$).

Conclusion: Compared to twice-weekly, thrice-weekly maintenance hemodialysis decreases serum albumin concentration and increases IL-6 concentration in CKD patients.

A Rare Case Of Light Chain-Associated Tubulointerstitial Nephritis in A Diabetic Patient

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Introduction: Light chain-associated tubulointerstitial nephritis is rarely seen in multiple myeloma with a background of diabetes. It usually presents as acute kidney injury and is characterized by interstitial inflammation with tubulitis and deposition of monoclonal light chains.

Case report: A 68-year-old woman with diabetes presented with complaints of loss of appetite, nausea, and malaise for 2–3 months. Her pulse rate was 88 bpm, blood pressure was 150/110 mm Hg, and respiratory rate was 18 cycles per minute. She exhibited pallor and bilateral pitting edema.

Results: Hemoglobin: 8.3 g/dL, urea: 191 mg/dL, creatinine: 7.8 mg/dL, potassium: 3.7 mg/dL, phosphorus: 3.9 mg/dL, calcium: 8.6 mg/dL, albumin: 3.7 g/dL, globulin: 3.2 g/dL, uric acid: 10.5 mg/dL.

Urine routine: Albumin: trace, RBC of 0-2/hpf, WBC of 2–3/hpf. Urine albumin-to-creatinine ratio: 285 mg/g. Bence Jones protein was identified in the urine.

Serum electrophoresis showed a peak in the beta-1 globulin zone. Serum free lambda and kappa light chains were 444.38 mg/dL and 56.97 mg/dL, respectively.

Renal biopsy: Suggestive of light chain cast nephropathy with mild tubulointerstitial chronicity with early diabetic nephropathy changes. Immunofluorescence shows positive staining for lambda light chain (4+).

Bone marrow biopsy: Revealed plasma cell neoplasm with lambda light chain restriction.

Conclusion: Patients presenting with acute kidney injury require hemodialysis. Renal biopsy is critical for diagnosis. The patient was started on chemotherapy with bortezomib and dexamethasone.

Cardiovascular Abnormalities in Patients of Chronic Kidney Disease With Reference to Cardiac Biomarkers such as Cardiac Troponins and NT Pro-B Type Natriuretic Peptide

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Introduction: The rise in cardiovascular disease among patients with chronic kidney disease has led to increased mortality in this population. Early prediction of disease can be achieved using cardiac biomarkers, which are objectively measured and quantified indicators of normal or abnormal biological or pathogenic processes.

Aim: This study aims to explore cardiac biomarkers to identify cardiovascular abnormalities in patients with chronic kidney disease.

Materials and methods: A cross-sectional observational study was conducted on 103 patients admitted to Dr DY Patil Hospital with chronic kidney disease. Clinical data, along with the results of laboratory parameters, were reviewed and analyzed.

Observation: Cardiac troponin T and NT pro BNP levels were found to be elevated in patients with chronic kidney disease admitted to the hospital. Among these patients, those with a significant increase in cardiac troponin T (> 26.5 pg/mL) and NT Pro BNP (> 400 pg/mL) had a substantially higher rate of cardiovascular abnormalities and heart failure.

Conclusion: The detection of cardiac biomarkers is significant in the early prediction and treatment of cardiovascular abnormalities in patients with chronic kidney disease.

A Rare Case of IGA Nephropathy in Sickle Cell Disease Patient

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Introduction: Sickle cell disease is a type of inherited hemolytic anemia causing vaso-occlusive phenomenon and multiorgan injury. It causes nephropathy in the form of hematuria, nephrotic syndrome, and renal infarction. Glomerular pathologies are less commonly seen, such as focal segmental glomerulosclerosis and membranoproliferative glomerulonephritis variety. IgA nephropathy is the most common form of glomerulonephritis, with a predominance in males. IgA nephropathy can be primary or secondary (celiac disease, Whipple's disease, cirrhosis of the liver, spondyloarthropathy, lung cancer).

Materials: We report a case of a 22-year-old male with a history of sickle cell disease who was brought to the ER with symptoms of facial puffiness, bilateral pedal edema, along with generalized weakness for 10 days. The patient had received multiple blood transfusions previously. On admission, he was hemodynamically unstable, with a pulse rate of 106/minute and BP 96/68 mm Hg. Pallor and edema were present, and his spleen was palpable.

Observations: Pertaining to the laboratory and clinical findings, renal biopsy was done, and it showed IgA nephropathy. As he was severely anemic, 5 units of blood transfusion were given with tab prednisolone on a tapering dose, tab ramipril, and tab torsemide.

Parameter	*Lab value*	*Reference range*
WBC	16.2	4–10 × 103/mm3
Hb	3.8	11–16.0 g/dL
Serum urea	336.7	10–40 mg /dL
Serum creatinine	1.4	0.5–1.5 mg/dL
Serum protein	4.4	6–8.3 gm/dL
Serum albumin	2.2	3.6–4.8 gm/dL
Urine albumin	+++	–
24-hour urine volume	1710	–
24-hour urine protein	10,468	–

Conclusion: The above case is presented for its atypical clinical presentation and rarity, with only a few cases being reported. The biopsy revealed IgA nephropathy. The association between sickle cell disease and IgA nephropathy is yet to be established. The diagnosis of glomerulonephritis in patients with sickle cell anemia may be difficult owing to the similar manifestations of these conditions.

Clinical Profile And Outcomes of Exertional Rhabdomyolysis-Related Acute Kidney Injury in a Tertiary Care Center

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Background: Exertional Rhabdomyolysis is a potentially serious condition characterized by muscle breakdown leading to muscle pain, acute kidney and liver injury, and various other complications. Most data are anecdotal, and there is no major data in this regard.

Methodology: A retrospective observational study was conducted from June 2019 to 2022 in a tertiary care hospital in Western India. All patients with exertional rhabdomyolysis reporting to the OPD/IPD and having acute kidney injury (AKI) (based on AKIN criteria) were included. Patients without any history of exertion and those triggered by other causes were excluded. Details of demography, mode of exertion, clinical presentation, course of illness, laboratory abnormalities, treatment received, and outcomes were recorded. IEC approval and consent were obtained.

Results: Sixteen cases of exertional rhabdomyolysis were included, of which 14 (87.5%) were males with a mean age of 23.4 ± 3.2 years. Ten (62.5%) had unaccustomed exertion with prolonged running, with seven (43.7%) being the most common. Muscle pain with body ache was present in all (100%), followed by dark urine in eight (50%), fever in seven (43.7%), swelling feet in seven (43.7%), and oliguria/anuria in six (37.5%) individuals. The mean maximum level of creatinine was 5.4 ± 2.2 mg/dL, serum glutamic oxaloacetic transaminase/serum glutamic pyruvic transaminase were 810 ± 112.2 / 755.4 ± 98.2 IU/L, lactate dehydrogenase was 1224 ± 312.2, creatine phosphokinase was 800 ± 92.2; hyperkalemia was present in seven (43.7%), and urine for myoglobinuria or hemosiderinuria was present in twelve (75%) cases. Eight (50%) patients required dialysis with a mean dialysis requirement being 3.8 ± 1.9 (range 1–11). Renal biopsy was done in five (31.2%) showing severe acute tubular necrosis in all, pigment nephropathy in three (18.7%). No mortality was seen. AKI recovered in all, while one (6.25%) developed CKD.

Conclusion: Exertional rhabdomyolysis with AKI is a serious condition with a dialysis requirement in 50% of cases. An early diagnosis and aggressive treatment have good outcomes with complete recovery in 93%.

A Case Report on The Outcome in a Patient of Left Renal Artery Stent Thrombosis in a Previously Diagnosed Case of Thoracoabdominal Aortic Aneurysm Postendovascular Aneurysm Repair

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Introduction: Bilateral renal artery stenosis or stenosis to a solitary functioning kidney is problematic due to the additional contribution to worsening kidney function and fluid retention. Acute renal artery thrombosis with renal failure is a rare event, and clinical presentation is often nonspecific. This typically leads to delayed diagnosis and may result in end-stage renal disease. However, the optimal therapy for in-stenosis is not defined.

Clinical case: A 65-year-old male patient presented with complaints of loose stool, vomiting, and urinary retention for 1 day. The patient had previously undergone endovascular aneurysm repair for a thoracoabdominal aneurysm 3 years back. On investigation, renal Doppler study showed bilateral renal artery thrombosis, and USG abdomen pelvis was suggestive of right-sided chronic kidney disease. Further studies showed high-grade left renal artery in-stent stenosis. Left renal artery balloon angioplasty was done, following which there was restoration of renal artery perfusion and function. Supportive management in the form of maintenance Hemodialysis and antiplatelet therapy was given. The patient continues to remain under follow-up and is hemodynamically stable.

Studies reveal that balloon angioplasty in a patient with stent thrombosis along with supportive medical treatment has no effect on the impaired renal function, rather leading to significant procedure-related complications. However, in this case, there has been a positive outcome in terms of improvement in renal hemodynamics with the balloon angioplasty procedure.

Conclusion: In patients with bilateral renal artery stenosis or stenosis to a solitary functioning kidney, though study findings favor a conservative approach, with a focus on cardiovascular risk factor management and avoiding stenting, this case demonstrates that both risk management and stenting can be beneficial.

Spectrum of Biopsy-Proven Glomerulonephritis in Individuals With Asymptomatic Urinary Abnormalities

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Background: Asymptomatic urinary abnormalities such as hematuria and subnephrotic proteinuria are frequently incidentally detected in asymptomatic individuals without any renal disease. Most of these are benign, while a few may actually have underlying glomerulonephritis at an early stage. Early diagnosis may help in the early initiation of management, prediction of prognosis, close monitoring of the disease, and thus help in retarding the progression of the disease.

Methods: The study was a retrospective observational study in a tertiary care hospital. All asymptomatic (apparently

healthy individuals without any known renal or related disease), individuals undergoing health checkups, individuals undergoing preanesthetic checkups, and individuals with nonrenal diseases were included in the study if they had abnormal urine examination (protein 1 + or more, any RBC or RBC cast, any active urine sediment) on two or more occasions. Individuals with systemic diseases known to affect the kidneys, such as long-standing diabetes or hypertension, autoimmune conditions, or vasculitis, were excluded. A detailed history and examination were conducted for these patients. All patients underwent an ultrasound KUB, 24-hour urine protein, renal function tests, and other relevant investigations. Individuals with glomerular or unexplained hematuria or proteinuria >1000 mg/day underwent kidney biopsy.

Results: We screened 1,000 patients, of which 108 patients had asymptomatic urinary abnormalities, of whom 28 were excluded, and 80 were included in the study. Among the 80 patients, 42 (52.5%) had proteinuria > 1000 mg/day, 15 (18.7%) had isolated hematuria, while 23 (28.75%) had both hematuria and proteinuria. Among the 65 subjects with proteinuria, 22 (33.8%) had 2000–3500 mg/day, 3 (4.6%) had > 3500 mg/day). Twenty-eight (35%) subjects had associated abnormal creatinine, and 16 (20%) patients had one or both shrunken kidneys, suggestive of chronic kidney disease, while two patients had autosomal dominant polycystic kidney disease and solitary kidneys each. Renal biopsy was performed in 52 subjects (eight subjects refused, not done in shrunken kidneys). Biopsy showed IgA nephropathy in 16 subjects (30.7%), focal segmental glomerulosclerosis in nine subjects (17.3%), membranous nephropathy in three (5.7%), chronic glomerulonephritis (sclerosed glomeruli) in eight (15.3%), hypertensive nephropathy in three (5.7%), minimal change disease in four (5.6%), chronic tubulointerstitial disease in seven (13.4%), Monoclonal gammopathy of renal significance (MGRS) in one (1.9%), and C3 glomerulopathy in one (1.9%). Most patients with glomerulonephritis with proteinuria were managed with angiotensin-converting enzyme inhibitors/angiotensin receptor blockers, while steroids/immunosuppression were used in six patients (four IgA nephropathy, one each of membranous nephropathy, and MGRS).

Conclusion: Urinary abnormalities in asymptomatic individuals are an important screening method for early detection of glomerulonephritis, and if present, they should be evaluated in detail with renal biopsy performed if required.

Study of Clinical Profile of Acute Kidney Injury in Medical Intensive Care Unit in A Tertiary Care Center

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Aim: To study the clinical profile of acute kidney injury (AKI) in the medical intensive care unit at a tertiary care center.

Materials and methods: Study area: Intensive medical care unit, CPR Hospital, Kolhapur, Maharashtra, India.

Study duration: September 2022–August 2023.

Study design: prospective observational study.

Results: In our study, AKI predominantly occurred in the young population, with 62% of patients aged 18–40 years. Males were more commonly affected than females, with a male-to-female ratio of 1.7:1.

Among the presenting features, the most common symptoms were breathlessness (35%), decreased urine output (18%), and leg swelling (14%). Common signs included tachypnea (30%), hypotension (18%), and edema (16%).

The most common comorbidities were hypertension (16%) and diabetes mellitus (12%), indicating that hypertensive and diabetic patients were more susceptible to the development of Acute Kidney Injury. The majority of patients were categorized as stage III according to AKIN criteria.

Most common causes for AKI were sepsis, snake bite and drug-induced accounting for about 30, 23, and 19% patients, respectively. Most common focus for sepsis was pneumonia followed by urinary tract infection accounting for 18 and 06% patients, respectively. Most common organisms for pneumonia were viral followed by bacterial accounting for 77.7 and 22.22% patients, respectively. Most common drugs responsible for AKI were amphotericin B and remdesivir accounting for 52.6 and 36.8% patients, respectively.

A toal of 67% of the patients were managed conservatively, while 31% required renal replacement therapy (RRT). Patients were followed up until 28 days after recovery, and the mortality rate was 26%. The need for RRT, hyperkalemia, and metabolic acidosis were associated with higher mortality, and these findings were more prevalent among hypertensive and diabetic patients.

Conclusion: AKI is more prevalent in young patients, with a higher incidence in males than females. The common presenting features include breathlessness, decreased urine output, and leg swelling. The most common comorbidities were hypertension followed by diabetes. Sepsis is the most common cause of AKI, followed by snake bites and drug-induced cases. Pneumonia is the primary focus for sepsis. The most common organisms responsible for pneumonia were viral, followed by bacterial. While the majority of patients are managed conservatively, some require renal replacement therapy. The need for renal replacement therapy, hyperkalemia, and metabolic acidosis are associated with higher mortality.

A Cocktail of Gietalman and Bartter Syndrome

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Introduction: Bartter and Gitelman syndromes are rare inherited tubulopathies characterized by hypokalaemic, hypochloraemic metabolic alkalosis. They are caused by mutations in at least seven genes involved in the reabsorption of sodium in the thick ascending limb (TAL) of the loop of Henle and/or the distal convoluted tubule (DCT). Here, we report a case of a middle-aged female presenting with hypokalemic metabolic alkalosis

Case description: A 63-year-old female with no known comorbidities presented with complaints of decreased appetite for 7 days, nausea, and constipation for 3 days. On examination, vitals were stable, single breath count was normal. Systemic examination was normal. On investigations, arterial blood gas analysis showed metabolic alkalosis with severe hypokalemia, renal profile showed elevated urea and creatinine, and serum electrolytes showed low bicarbonate and hypocalcemia. Urine analysis showed increased urine potassium levels, trans tubular potassium gradient increased, urine chloride level increased, and urine calcium creatinine ratio was borderline between Gietelman and Bartter syndrome.

The above case depicts the tubular loss of electrolytes but there was an overlap of Bartter type 3 and Gietelman syndrome, which is possible but still a rare entity. The patient was treated with potassium and calcium supplementation and the patient improved symptomatically. Among patients with the chloride channel Kb (CLCNKB) gene mutation, high, normal, or even low urinary calcium levels have been found, once again providing proof of the great clinical variability among patients with this particular gene mutation, Gietalman syndrome is caused by both the classic solute carrier family 12 member 3 (SLC12A3) gene mutation encoding NCCT and CLCNKB gene mutation encoding CIC-Kb. Bearing in mind this possible overlap between the two syndromes and in order to prevent further confusion in the categorization of these patients.

Conclusion: This case report helps in the distinction between Gitelman and Bartter type 3 syndrome is sometimes blurred and it may be preferable to categorize patients with CLCNKB gene mutation as having a distal convoluted tubulopathy.

Clinico-Microbiological Profile of Emphysematous Pyelonephritis in a Tertiary Care Center

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Introduction: Emphysematous pyelonephritis (EPN) is a life-threatening infection of the renal parenchyma with gas formation, usually caused by the organisms like *Escherichia coli* (*E. coli*) and *Klebsiella pneumoniae*, and carries significantly high mortality rates. It has been hypothesized that a reduced state of immunity and high blood glucose levels in diabetics make them susceptible to anerobic gas-forming microorganisms resulting in EPN. In the absence of any early therapeutic intervention, these cases rapidly progress to sepsis. The management strategy suggested by various authors includes vigorous resuscitation and aggressive medical management followed by immediate nephrectomy.

Methods: The data of all the patients of EPN diagnosed by ultrasound sonography (USG)—abdomen or computed tomography (CT)—abdomen coming to the Department of General Medicine, Department of Nephrology and Department of Urology of Pradyumna Bal Memorial Hospital (PBMH), Kalinga Institute of Medical Sciences (KIMS), Bhubaneswar in the last 5 years were collected and analyzed to establish the organism cultured, sensitivity pattern, treatment, outcome and associated complications to find out the clinico-microbiological profile of EPN.

Results: There was a 5 to 1 ratio of incidence in females to males, all of whom were diabetic, and 38.8% had obstructive uropathy. The site of involvement was categorized as EPN along with Emphysematous cystitis (28.5%) and only EPN (71.5%). Out of the positive culture reports 70% were *E. coli* and 30% were *Klebsiella pneumoniae* ssp. Pneumonia. 13 out of 18 were managed with antibiotics alone out of which the survival rate was 61.5%; whereas out of five patients who were managed with antibiotics with drainage two (40%) survived. and the rest eight (44%) out of 18 died secondary to sepsis.

Conclusion: People with diabetes mellitus, more often females are at higher risk. Good glycemic control may help decrease the risk of developing EPN. *E. coli* was the most common causative organism cultured. We recommend early diagnosis, and aggressive management in the form of strict diabetic control and use of broad-spectrum antibiotics in all EPN cases. Surgical intervention is needed where obstruction exists and nephrectomy is required only in very severe cases which are refractory to medical management.

Bone Mineral Density and Body Composition Estimation Using Dual-Energy X-Ray Absorptiometry Scan in Chronic Kidney Disease Patients

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Introduction: Chronic kidney disease (CKD) is a worldwide health problem affecting around 5–10% of the world population. The majority of these patients are at increased risk of developing disturbances of bone and mineral metabolism. Bone density measurement is used as an indicator of osteoporosis and fracture risk. The dual-energy X-ray absorptiometry (DEXA) system performs rectilinear scans over the length of the body.

Materials and methods: Hospital-based observational study was carried out in the Department of Medicine in a Medical College and Hospital, with 120 Patients over a period of 12 months. Bone mineral density will be measured by using a DEXA scan. To study the body composition and bone mineral density using DEXA scan in chronic kidney patients.

Observations: Out of 120 patients, 63 (52.50%) were male and 57 (47.5%) were female with a ratio of 1.10:1. The mean age of the study population was 49.33 ± 14.93 years. Bone mineral density (BMD) results at the femur neck showed that out of 120 cases, 54 (45%) had osteopenia. A total of 38 cases (31.67%) had osteoporosis. BMD results at the lumbar spine showed that out of 120 cases, 52 cases (43.34%) had osteopenia. A total of 21 cases (17.5%) had osteoporosis of which 10 (8.33%) were male and 11 (9.17%) were female. The difference in the BMD values at the femur neck in different stages of CKD was found to be significant with a p-value of <0.0001.

Conclusion: The prevalence of osteopenia and osteoporosis was high and increased with the severity of CKD and lean mass decreased and fat mass increased in patients with CKD.

A Case Report on *Escherichia Coli* Sepsis-Induced Hyperammonemia in a Maintenance Hemodialysis Patient

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Introduction: Sepsis-associated encephalopathy can be found in upto70% of patients with severe sepsis and is a common neurological complication.

Materials and methods: A 58-year-old man who presented with altered sensorium was found to have *Escherichia coli* (*E. coli)*-induced sepsis with hyperammonemia (nonhepatic) and is on intermittent hemodialysis. He was treated successfully and had a full recovery.

Discussion: Ammonia is a major factor in the pathogenesis of hepatic encephalopathy and it crosses the blood-brain barrier readily and results in significant neurotoxicity. However, hyperammonemia also can occur in critically ill patients who do not have hepatic disorders including individuals with sepsis gastrointestinal bleeding, kidney failure elevation in sodium, and exposure to valproate.

Recent reports suggest serum ammonia as a possible predictor of 28-day mortality and hospital stay in patients with sepsis Among sepsis, urease-producing bacteria like protease klebsiella, *E. coli*, *Helicobacter pylori* (*H. pylori*) and *Morganella* species converts urea to ammonia and carbon dioxide by the enzyme urease.

In patients with end-stage renal disease (ESRD) undergoing maintenance hemodialysis infections and sepsis are the second leading cause of death. *E. coli* followed by coagulase-negative staphylococcus followed by *Klebsiella pneumonia* are leading causes of infection in maintenance hemodialysis patients.

Conclusion: Higher ammonia levels are associated with poorer prognosis in patients with sepsis. Early identification of sepsis and implementation of early goal-directed therapy has been shown to improve outcomes and decrease mortality in patients with severe sepsis and septic shock.

A Study on The Association of Clinical Profile with the Outcomes of Lupus Nephritis

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Introduction: Systemic lupus erythematosus (SLE) is a classic case of an autoimmune disease, with symptoms that can affect many organ systems. The involvement of the kidneys causes more than half of the mortality in SLE. The clinical and pathological manifestations of lupus nephritis have a significant impact on the prognosis and, consequently, the choice of treatment.

Materials and methods: A total of 20 adult cases of new-onset lupus nephritis satisfying the inclusion and exclusion criteria.

Inclusion criteria: Adult SLE patients who satisfy the 1997 revised American College of Rheumatology classification criteria with new onset lupus nephritis.

Exclusion criteria: (1) Childhood lupus nephritis, (2) end-stage renal disease, (3) relapsed lupus nephritis, and (4) other causes of chronic kidney disease.

Results: A total of 20 patients were enrolled as part of the study and followed up for a period of 1 year. Among these 14 were females and six were males. The range of age was 16–47 years. Three patients lost follow-up and in one patient the outcome could not be assessed as the patient was not willing to biopsy and was irregular in follow-up. On multistep logistic regression analysis, age emerged as an important risk factor influencing the final outcome with a *p*-value of 0.047.

Conclusion: (1) Among 20 patients 64% achieved complete response, 4% achieved partial response, 8% improved while 12% remained refractory and 4% died, (2) lower age, female sex, lower disease activity, good initial renal function [low serum creatinine (s. creatinine) and high initial estimated glomerular filtration rate (eGFR)] were important factors associated with a favorable outcome, (3) among patients who achieved complete response initial s. creatinine positively correlated with the time taken for the outcome, and (4) higher age, disease activity, erythrocyte sedimentation rate and initial proteinuria positively correlated with time taken to complete response.

Serum Phosphate as an Additional Marker for Initiating Hemodialysis in Patients with Advanced Chronic Kidney Disease

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Introduction: Chronic kidney disease (CKD) is defined as a progressive and irreversible loss of kidney function. As per glomerular filtration rate (GFR), an adult reports 60 mL/minute/1.73 m^2 or less indicating a loss of half or more of normal kidney functioning. Phosphorus is a major intracellular anion and >90% of the body's phosphorus is in bone and soft tissue. Serum phosphorus accounts for >1% of the body's total phosphorus amount, but is a surrogate marker of total body phosphate content. A sharp decline in the GFR leads to reduced renal excretion of phosphate and disruption of the hormonal regulatory process. Therefore, patients with advanced CKD typically retain phosphate and develop hyperphosphatemia. Previous research indicated that significant hyperphosphatemia occurred in CKD patients who were under intensive treatment and who chose to delay the initiation of renal replacement therapy (RRT). This study examines the role of serum phosphate levels in advanced CKD and the potential use of hyperphosphatemia to guide the initiation of RRT.

Materials and methods: This cross-sectional study was performed on 60 advanced CKD patients admitted under the Department of General Medicine, Kempegowda Institute of Medical Sciences during an 18-month period. Serum phosphate levels were evaluated. Patients were followed up for 6 months and the requirement of dialysis was recorded. The data was collected and compiled in Microsoft Excel. Descriptive statistics has been used to present the data. To analyse the data Statistical Package for the Social Sciences (SPSS) (version 26.0) was used. The significance level was fixed as 5% ($\alpha = 0.05$). Qualitative variables are expressed as frequency and percentages and quantitative variables are expressed as mean and standard deviation. To compare the association between numerical and categorical variables, a student *t*-test was used. The receiver operating characteristic (ROC) curve was generated to generate the value of serum phosphate in predicting dialysis requirements.

Observation: The mean age of the study participants was found to be 58.38 + 12.777. Around 66.7% of the study participants were males and 81.7% of the study participants required hemodialysis. The mean serum phosphate was found to be 7.170 + 1.1563 and the mean estimated glomerular filtration rate was found to be 7.22 + 2.53. The mean serum phosphate among study participants with dialysis was found to be higher than study participants without dialysis (7.64 + 0.61 vs 5.055 + 0.242; *p*-value of 0.001). The serum phosphate value of 6.10 was found to be predictive of hemodialysis with a sensitivity of 98% and specificity of 0%.

Conclusion: Hyperphosphatemia may be a useful marker to determine the timing of hemodialysis initiation in patients with advanced CKD.

Neurology

A Case of Neurofibromatosis Type 1 with Chronic Iron Deficiency Anemia and Autoimmune Atrophic Gastritis

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Introduction: Neurofibromatosis type 1 or von Recklinghausen syndrome, is an autosomal dominant complex multisystem human disorder caused by the mutation of neurofibromin 1, a gene on chromosome 17 that is responsible for the production of a protein (neurofibromin) which is needed for normal function in many human cell types. Gastrointestinal tract lesions are not uncommon in neurofibromatosis 1 (NF1) and are reported in 10–25% of all cases.

Atrophic gastritis is a process of chronic inflammation of the gastric mucosa of the stomach, leading to a loss of gastric glandular cells and their eventual replacement by intestinal and fibrous tissues.

Autoimmune metaplastic atrophic gastritis is an inherited form of atrophic gastritis characterized by an immune response directed toward parietal cells and intrinsic factors. The presence of serum antibodies to parietal cells and to intrinsic factors are characteristic findings.

Some people with atrophic gastritis may be asymptomatic. Symptomatic patients are mostly females and signs of atrophic gastritis are those associated with iron deficiency—fatigue, restless legs syndrome, brittle nails, hair loss, impaired immune function, and impaired wound healing 2.

Case description: A 33-year-old female presented with chief complaints of shortness of breath and fatigue for the past 2 years. Past history is significant for repeated blood transfusions and oral iron supplements every 6 months for the past 2 years. A general physical examination revealed the presence of cafe au lait spots, koilonychia, and neurofibromas.

Lab reports show hemoglobin of 4.9% gm and serum ferritin levels of 5.3 ng/mL. she had no history of melena, menorrhagia, or other bleeding manifestations. The stool for occult blood was negative. An abdominal computed tomography (CT), hemoglobin (Hb) electrophoresis, and colonoscopy were normal. The antinuclear antibody (ANA) profile was negative. Upon upper gastrointestinal (UGI) endoscopy, a biopsy was obtained from the gastric antrum and fundus.

Biopsy revealed features suggestive of atrophic gastritis. A serum anti-intrinsic factor antibody was negative and an anti-parietal cell antibody was positive. The anti-helicobacter pylori antibody was negative. A thorough workup was done and the patient was diagnosed with neurofibromatosis type 1 posttreatment during follow-up, the patient's hemoglobin reports were normal and she was symptom-free.

Conclusion: Gastrointestinal tract involvement in NF1 patients almost always affects the UGI tract and includes tumors, vasculopathy and bleeding, pseudo-obstruction, and protein-losing enteropathy. Although this patient had no features of gastrointestinal stromal tumors or intestinal neurofibromas, diagnosis of autoimmune metaplastic gastritis (type A gastritis) provided considerable insight into the occurrence of such autoimmune conditions in patients with inherited disorders like neurofibromatosis.

Vertebral Artery Hypoplasia: Unravelling its Link to Acute Ischemic Stroke

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Introduction: Stroke is the leading cause of death and a common cause of disability worldwide. Despite advances, there are cases where the exact etiology is unknown. One such area of interest is the association between vertebral artery hypoplasia (VAH) and acute ischemic stroke (AIS). Although VAH is asymptomatic, may predispose to AIS leading to vertebrobasilar occlusion. Understanding the underlying mechanisms and potential links between VAH and AIS is of great importance for better prevention and treatment. In this study, we aim to find the role of VAH in AIS pathogenesis and identify specific risk factors that may exacerbate the relationship between them.

Methodology: The study participants are adults with newly diagnosed AIS admitted at our hospital. The objectives were to investigate the association between VAH and AIS and investigate their association with gender, advanced age, and risk factors. Demographics and risk factor profiles like diabetes mellitus, hypertension, and addictions for all patients were recorded. The severity of the stroke was evaluated using the National Institute of Health Stroke Scale (NIHSS) score > 10 was considered a severe stroke. The presence of VAH was asserted using magnetic resonance angiography (MRA) based on specific criteria such as vertebral artery with diameter <2.5 mm or side difference > than 1:1.7 or diameter of VA <3.0 mm, peak systolic velocity <40 cm/seconds. Statistical analysis was performed by applying a proportionate test and the Chi-squared test.

Observations: Among the patients (n = 6 5), 32 patients (50.8%) exhibited VAH of which, 14 (42.4%) had posterior circulation stroke, while 18 (54.5%) had anterior circulation stroke. Severe stroke was observed in 39.4% of male patients and 26.2% of female patients. Gender analysis revealed a significant association, males with VAH are more likely to experience a severe stroke ($p = 0.016$, OR = 10.46). Among risk factors, hypertension was significantly associated with VAH ($p = 0.044$). However, no statistically significant difference was noted in stroke severity or the presence of VAH concerning advanced age.

Conclusion: This study shows the considerable prevalence of VAH in AIS patients. Patients with VAH were more likely to have posterior circulation stroke. Gender analysis showed that males with VAH had a higher likelihood of experiencing severe stroke than females. Hypertension was significantly associated with VAH. However, no statistically significant difference was found in stroke severity or the presence of VAH concerning advanced age. These findings highlight the importance of considering VAH and its associated risk factors in stroke management and risk assessment.

Cerebral Proliferative Angiopathy: a Rare Case Report

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Introduction: Cerebral proliferative angiopathy (CPA), is characterized by large vascular lesions that can occupy an entire cerebral hemisphere and mainly cause seizures, motor deficits, and other symptoms. In CPA, anomalous vessels continue to recruit additional feeder arteries, making their architecture and natural history different from usual arteriovenous malformation (AVM).

Case description: A 75-year-old Female presented with right-sided focal seizures with loss of awareness, altered mental sensorium, and paucity of movements on the right side.

On examination, the patient was conscious, incoherent, with right-sided hemiplegia (Power 0/5), spasticity, and exaggerated reflexes on the right side, with Babinski positive.

Magnetic resonance imaging (MRI) brain shows evidence of diffuse asymmetric engorgement of multiple vascular spaces interspersed with normal brain parenchyma involving bilateral hemispheres Lt > Rt with midline shift of 8.5 mm, with vasogenic edema.

Computed tomography (CT) brain angiogram shows multiple opacifying vessels in the arterial phase with no dominant feeding artery and no early venous opacification. Suggestive of CPA.

Discussion: Cerebral proliferative angiopathy (CPA) predominantly affects young adult female patients, with symptom onset, on average, at 17 years and represents 3.4% of the diagnosed vascular malformations. The morphology on CT or MRI is characterized by diffuse vascular lesions interspersed with normal brain parenchyma. The management of CPA is challenging due to lesions interspersed with normal brain parenchyma carrying a high-risk of procedural (surgical/radiotherapy/endovascular) complications resulting in permanent neurological deficits.

Conclusion: The identification of CPA as a distinct entity among other vascular malformations is important since its treatment and prognosis differ from the usual AVMs.

Tuberculoma Patient Presenting as Multiple Cranial Nerve Palsies

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Introduction: Tuberculoma, an uncommon manifestation of tuberculosis (TB) of the central nervous system presents as one or more space-occupying lesions and usually causes seizures and focal signs.

Case description: A 47-year-old female patient came with complaints of weakness over the left side of the face from the last 20 days associated with difficulty in swallowing food, drooling of saliva from the left angle of the mouth, and difficulty in closing the left eye associated with slurring of speech. She also complained of intermittent diminished hearing and

tinnitus in the left ear along with subjective vertigo. History of weight loss of 10 kg in past 2 months.

Central nervous system (CNS) examination: Deviation of the angle of mouth to right; visual acuity in left eye reduced; reflexes—2+ power –5/5 in all limbs.

Investigations: The MRI brain has a lesion in the left pons, and multiple tubercular granulomatous lesions in the right parietooccipital and left occipital regions.

Cerebrospinal fluid (CSF) analysis: Lymphocyte predominant pleocytosis with elevated proteins and low glucose; CSF adenosine deaminase (ADA) test was positive which was 24 units/lit cartridge-based nucleic acid amplification test (CBNAAT) negative.

Conclusion: The risk of extrapulmonary tuberculosis increases with declining clusters of differentiation 4 (CD4) count in individuals with human immunodeficiency virus (HIV). The most common cranial neuropathy is facial nerve. The neurological manifestations of tuberculosis include tuberculous meningitis (TBM), TB granulomas, and brain abscesses. Therefore, a high index of suspicion should always be considered and lumbar puncture along with radiological investigations should be considered in patients.

A Case of Neuro Wilson's Disease

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Introduction: Wilson's disease (WD) is an autosomal recessive disease involving a defect of copper transport by the hepatic lysosomes. It leads to excess copper deposition in the liver, brain, kidneys, and skeletal system, commonly affects children or young adults, and runs an invariably fatal course if not adequately treated by decoppering therapy. The condition results from variants in ATP7B, a highly evolutionarily conserved P-type ion-motive adenosine triphosphate (ATP) that normally mediates copper ion removal from the liver *via* biliary excretion and prevents brain copper accumulation.

In patients with neurologic presentations, abnormalities include speech difficulty (dysarthria), dystonia, rigidity, tremor or choreiform movements, abnormal gait, and uncoordinated handwriting.

Objective: To investigate a young female Presenting with involuntary movements of both hands and tremulousness of the speech.

Case description: A 26-year-old female presented with involuntary movements of both hands and tremulousness of speech.

On examination, rural tremors involving both hands, tremulousness of speech because of tremor, and a round grayish brown colored ring-shaped discoloration present in the periphery of the cornea. Multiple discrete hypopigmented to ivory-colored macules, patches present over the back, nape of the neck, and extensor surface of the forearm.

Investigations: Slit lamp examination—a round grayish brown colored ring-shaped discoloration present in the periphery of the cornea confirms the Kayser–Fleischer (KF) ring.

The MRI brain with contrast-symmetrical T2 flair hyperintensities in bilateral thalamic, and dorsal aspects of midbrain and pons.

Serum copper—45.27 mcg/dL (normal range—80–170 mcg/dL); 24-hour urine copper excretion—84.05 mcg/24 hours (normal range—15–70 mcg/24 hours); serum ceruloplasmin—0.04 gm/L (normal range—0.2–0.6 gm/L).

Peripheral smear—anemia of mild degree with eosinophilia, mild anisopoikilocytosis, and microcytic hypochromic form is seen.

Liver function tests—normal.

Family history—on screening the family members, her younger sibling had a KF ring, and after necessary investigations, presymptomatic Wilson's was diagnosed, and treated with zinc supplantation.

Conclusion: A young patient presenting with any movement disorder could be Neuro Wilson's unless otherwise proven the abovementioned clinical, laboratory, and radiological findings confirm the diagnosis of Neuro WD.

Clinical Profile, Treatment Response, and Disease Progression Among Phenotypic Variants of Idiopathic Parkinson's DiseasE

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Background and objectives: Parkinson's disease (PD) is clinically heterogeneous, and the two most common presentations are tremor-dominant PD and nontremor dominant or postural instability gait difficult (PIGD) variants. This study aimed to compare clinical profile, disease severity, and treatment response among these phenotypes.

Materials and methods: All patients attending the medicine clinic with a clinical diagnosis of PD between October 2020 and March 2023 were recruited in the study. The clinical diagnosis of PD was made according to the United Kingdom Brain Bank criteria. The patients were divided into tremor-dominant (TD) PD, indeterminate, or PIGD type based on the UPDRS-III score. The TD group was defined by a ratio of mean tremor score/mean PIGD score > 1.5 and the PIGD group was defined by a ratio of <0.9. If the ratio was between 0.9 and 1.5, the patient was placed in the indeterminate type group.

Results: The predominant initial symptom in PIGD–PD was rigidity and bradykinesia, compared to TD PD. PIGD–PD patients had significantly higher cognitive decline, and more severe nonmotor symptoms compared to Tremor dominant PD. Besides, these patients had higher Levodopa Equivalent dosages. TD PD patients had characteristic motor fluctuations in advanced disease.

Conclusion: The presentation with bradykinesia and the PIGD-PD is associated with a relatively malignant course, whereas PD patients who have tremors at the onset of their disease have a slower progression and a more favorable prognosis.

A-Amino-3-Hydroxy-5-Methyl-4-Isoxazole Propionic Acid Positive Autoimmune Encephalitis, an Extremely Rare and Diagnostically Challenging Entity

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Autoimmune encephalitis is a group of immune-mediated inflammatory brain disorders where antibodies against cell surface antigens of neurons are formed, inducing a variety of neuropsychiatric disturbances like cognitive decline, seizures, amnesia, and movement disorders. Encephalitis associated with antibodies against alpha amino 3 hydroxy 5 methyl 4 isoxazalopropionic acid receptor is an extremely rare type of antibody-mediated encephalitis which can broadly present as either limbic encephalitis or pure amnesia or fulminant encephalitis.

We herein report a case of a 45-year-old female who presented in an altered sensorium with abnormal body movements associated with frothing, slurred speech, swallowing difficulty, off-and-on jerky movements of the right-sided upper limb, and facial twitching more prominent on the right half of face (faciobrachial seizures). Along with this, there was also a complaint of up-rolling movements of eyeball and a tendency of forgetfulness in the recent past. On examination, there was a right-sided deviation of the neck, impairment of short-term memory, and involuntary jerky movements of the right upper limb along with frequent twitching of the right-sided facial muscles. Initially, she was put on conservative treatment along with anti-epileptics but the seizures were refractory to it. Among the investigative work. The magnetic resonance imaging brain done during her inward treatment was suggestive of focal cortical dysplasia after which an autoimmune encephalitis mosaic was ordered which revealed strongly positive glutamate receptor α-amino-3-hydroxy-5-methyl-4-isoxazole propionic acid 2 antibodies upon which immunotherapy was initiated.

This case highlights the diagnostic challenge in autoimmune encephalitis owing to its extremely rare prevalence and clinical overlap with many other neurological conditions which may result in misdiagnosis and delayed immunotherapy.

Case Report on Takayasu Arteritis in Young Male Presented With Cerebral Vascular Accident and Hypertension and Hyperhomocysteinemia

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Takayasu arteritis, also known as the pulseless disease usually affects major vessels like the aorta and subclavian, pulmonary, and renal arteries. Here, we are discussing a young male with hypertension, a 22-year-old male, presented with complaints of right upper limb weakness and slurred speech for 4 years, when he had an episode of stroke. 4 years ago, admitted to a tertiary care hospital, these symptoms were sudden in onset and, at that time regressed over the course. The patient was drowsy but arousable at presentation. Central nervous system (CNS) examination revealed normal-sized and reactive pupils, right-sided upper motor neuron facial weakness was apparent and the power on the right upper and lower limbs was 0/5 at onset. He was unconscious for 10 days after the incident, where conservative management in the intensive care unit (ICU) was observed at the tertiary care hospital. On evaluation, it was found that the patient had an elevated homocysteine level of 35.83 µmol/L. The cardiologist and interventional radiologist's opinions were considered in view of a young male with hypertension (HTN) with stroke they advised computed tomography (CT) angio, magnetic resonance imaging (MRI) thoracogram. CT-cerebral and neck angiographic studies were suggestive of the acute malignant middle cerebral artery (MCA) infarct, long segment thrombosis of the bilateral common carotid artery (CCA) with the reformation of the carotid bulb, and carotid bifurcation by collateral, as well as moderate narrowing of ostioproximal segment of the left subclavian artery. MR-thoracogram was done and was suggestive of aortitis. The patient was given anti-platelets, citicoline, statins, anti-hypertensive, and tab homocheck for hyperhomocysteinemia as conservative management for cerebrovascular accident and hypertension and advised physiotherapy, at the time of discharge. The patient was diagnosed with Takayasu arteritis based on a CT angiogram and clinical American College of Radiology (ACR) criteria for Takayasu arteritis at that center and was treated with steroids and immunosuppressants. He was in regular follow-up at the tertiary care center. When the patient visited for a follow-up, after 4 years of cerebral vascular accident (CVA) attack, to our institute, examination findings showed grade IV bilateral upper limb digital clubbing, with peripheral pulses at the left brachial artery and left radial artery being faintly palpable. The blood pressure over the right arm was 130/80 mm Hg and the left upper arm was 150/100 mm Hg. Other peripheral pulses are other than radial normal in volume and character. There was a radio-radial delay, the left Subclavian bruit and bilateral carotid artery bruit were auscultated. However, there were normal S1 and S2 heard with no murmurs. CNS examination revealed right reduced hand grip (80% of normal), right extensor plantar reflex, and +3 brisk knee reflex on the right. Power in the right upper and lower limbs is 4 ± 5. Other systemic examination, findings of cardiovascular, respiratory, and abdomen systems were unremarkable. The patient had elevated serum homocysteine levels of 29.0 µmol/L, the neck vessel Doppler study shows heterogeneously hypoechoic wall thickening of bilateral common carotid arteries with severe narrowing of lumen showing signs of thrombosis. Formation of collaterals was seen bilaterally at the site of bifurcation, Numano classification II a.

Magnetic resonance imaging (MRI) brain + contrast was suggestive of chronic infarct with gliotic changes in the left frontal and temporal lobes with hemorrhagic focus. Narrowing and irregularity of the M2 segment of left MCA with distal MCA being reformed by multiple collaterals. This is a case of Takayasu arteritis with CVA. So we are finally following up patient with steroids low dose, antiplatelets, immunosuppressants at a minimal dose, antihypertensive drugs and tab homin patient is doing well.

Neuroleptic Malignant Syndrome-Induced Acute Respiratory Distress Syndrome: a Case Report

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Introduction: Neuroleptic malignant syndrome (NMS) is a rare but potentially life-threatening condition associated with antipsychotic medication use. It is characterized by altered mental status, hyperthermia, autonomic dysregulation, and muscle rigidity. Acute respiratory distress syndrome (ARDS) is a severe pulmonary condition marked by hypoxemia, bilateral lung infiltrates, and acute respiratory failure. We present a case wherein NMS led to ARDS, emphasizing the significance of timely recognition and treatment.

Case description: A 25-year-old female was admitted with high fever, breathlessness, and altered mental status. On examination, her Glasgow coma scale (GCS) was 10/15, her respiratory rate was 34/minute, and her oxygen saturation was below 80%. Intubation and mechanical ventilation were promptly initiated due to severe hypoxemia. Baseline investigations demonstrated elevated white blood cell count and altered renal function parameters. Arterial blood gas analysis (ABG) and chest X-ray were suggestive of ARDS. Empirical antibiotics were initiated, but the patient's condition worsened.

Subsequent history provided by the patient's relative revealed ongoing antipsychotic medication usage. Considering this, NMS was suspected, and creatine phosphokinase (CPK) levels were assessed, confirming elevated levels. Antibiotics were discontinued, and the patient was started on bromocriptine, a dopamine agonist. Remarkably, within 48 hours, the patient exhibited significant improvement, leading to extubation.

Discussion: This case underscores the potential for NMS to result in ARDS, illustrating the intricate interplay between neurological and respiratory systems. Timely recognition of NMS, facilitated by a comprehensive patient history and laboratory investigations allowed for targeted treatment with a dopamine agonist. The prompt response and subsequent recovery highlight the critical importance of differentiating

NMS-induced complications from other clinical conditions causing ARDS.

Conclusion: The presented case accentuates the rare yet critical manifestation of NMS presenting as ARDS. Vigilance in assessing medication history, particularly antipsychotic use, is essential. Early recognition and appropriate management with dopamine agonists can mitigate severe complications, ensuring optimal patient outcomes. This case underscores the pivotal role of clinicians in piecing together clinical clues and history to guide precise interventions.

A Case of Classical Stiff-Person Syndrome (Anti-GAD +VE)

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A 52-year-old male patient, a farmer by occupation presented to the emergency department (ED) with complaints of difficulty in turning their head sideways while driving and bending forward to pick objects associated with tightness predominantly in the trunk and neck. H/o generalized slowness for activities and change in handwriting was present. Stiffness progressed gradually associated with intermittent spasms. A history of difficulty in mixing food was associated with spillage around the plate and smearing of food around the mouth while eating was present. He was unable to dress on his own for the past 6 months. No h/o suggestive of sensory system involvement; he had a known case of diabetes mellitus on insulin for the past 5 years.

On examination, the patient was conscious, oriented, and higher functions—normal.

Cranial nerve exam (CN) examination—CN-5 brisk jaw jerk, CN-9,10—brisk gag.

Motor system; tone–increased/brisk in all four limbs; bilateral ill-sustained ankle clonus present.

Gait—gets up from chair requiring support to be propelled from the chair, based stance, short steps, narrow strides, and turns en bloc.

The syndrome was an atypical parkinsonism/extrapyramidal with asymmetric onset pyramidal signs.

He was started on low-dose syndopa and trihexyphenidyl to which he had no response. TRODAT brain single-photon emission computed tomography (SPECT) showed bilateral presynaptic dopaminergic dysfunction. Positron emission tomography (PET) brain showed hypometabolism in bilateral temporal lobes and cerebellum. Whole-body PET was negative for the neoplastic process.

On further evaluation, onconeural antibodies were strongly positive for glutamic acid decarboxylase 65-kilodalton isoform. Needle electromyography showed continuous muscle fiber activity which was abolished with diazepam. He fulfilled Dalaka's criteria for Stiff-person syndrome.

Correlation of Neutrophil-to-Lymphocyte Ratio, Platelet-to-Lymphocyte Ratio, and Gamma Glutamyltransferase with Severity of Acute Ischemic Stroke

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Introduction: Acute ischemic stroke (AIS) is a devastating disease and remains one of the leading causes of death and disability worldwide. The neutrophil-to-lymphocyte ratio (NLR), platelet-lymphocyte ratio (PLR), and gamma-glutamyl transferase (GGT) are markers of acute systemic inflammation and modified Rankin scale (MRS) a useful validated clinical indicator of stroke severity. With this background, we want to evaluate whether admission NLR, GGT, and PLR levels correlate with early stroke severity using a modified Rankin scale.

Materials and methods: This is a cross-sectional study carried out in the Department of General Medicine and Neurology in KIMS, Bhubaneswar. A total of 57 patients with acute ischemic stroke during the period of May–July 2023 were recruited into the study. A complete blood count was done in all cases. NLR, PLR, and GGT were calculated from CBC. MRS was evaluated in all patients at the time of discharge. NLR, PLR, and GGT were analyzed with mRs grade for any correlation using Kruskal–Wallis analysis.

Results: The median age of study subjects was 64.2 (IQR—58.0–72.0) years with males of 33 (57.9%) and females of 24 (42.1%). Median PLR for grade II was 8.57 (IQR—5.52–14.20), grade III was 10.97 (IQR—8.0–18.93), grade IV was 16.09 (IQR—11.15–18.75), and grade V was 11.19 (IQR—10.32–17.56) with a significant *p*-value of 0.047. Median NLR for grade II was 2.10 (IQR—1.87–3.13), grade III was 3.09 (IQR—2.31–5.10), grade IV was 2.83 (IQR—2.35–7.08), and grade V was 3.54 (IQR—2.15–4.71) with a *p*-value of 0.221 and median GGT for grade II was 33 (IQR—20–41), grade III was 37 (IQR—17.50–44.50), grade IV was 23 (IQR—15.00–66.00) with a *p*-value of 0.932.

Conclusion: The platelet lymphocyte ratio has shown a significant *p*-value of 0.047 correlating well with the severity of acute ischemic stroke on the basis of MRS grading. Therefore, Platelet lymphocyte ratio can be used as a simple cost-effective tool in addition to MRS to predict the severity of acute ischemic stroke.

A Rare Association of Tuberculosis Longitudinally Extensive Transverse Myelitis with Brain Tuberculoma

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Introduction: Longitudinally extensive transverse myelitis is characterized by a continuous inflammatory lesion in the spinal cord involving three or more segments. It is well well-recognized but rare presentation of mycobacterium tuberculosis infection.

Case description: A 50-year-old male presented with sudden onset weakness of the bilateral lower limb associated with tingling and numbness of the bilateral lower limb with urinary incontinence. He had a history of low-grade fever, headache, recurrent vomiting, and confusion 2 months ago for which he was hospitalized and diagnosed with central nervous system (CNS) tuberculoma and started on antituberculosis treatment (ATT).

On general examination, there is pallor. On CNS examination, Higher mental function is normal, with no cranial neuropathy. The motor system shows hypertonicity of the bilateral lower limb, power 2/5 in the bilateral lower limb with loss of primary modalities of sensation with exaggerated bilateral knee reflex and ankle reflex with extensor plantar.

Investigation: Hemoglobin (Hb)—10.6 mg/dL, renal function test (RFT), liver function test (LFT), and serum electrolyte were normal. Erythrocyte sedimentation rate (ESR)—55 mm. Magnetic resonance imaging (MRI) cervical-dorsal spine shows T2 high signal intensity extending from C6 vertebrae up to the tip of the conus.

The MRI brain with MR spectroscopy shows multiple ring enhancement lesions with lipid lactate peaks.

Treatment: The patient was given an injection of dexamethasone with an antitubercular drug and tab pyridoxine. He was advised to visit after 1 month for follow-up.

Discussion: Longitudinal extensive transverse myelitis (LETM) is a rare form of neurological presentation of central nervous system tuberculosis (CNS-TB). Tubercular LETM is postulated to be a result of abnormal activation of the immune response against the spinal cord. Early detection of tubercular LETM is mandatory otherwise it may turn into a cavitary syrinx formation and permanent disabilities proper clinical history, physical examination, high degree of suspicion, and early neuroimaging are keys to accurate diagnosis of tubercular LETM.

Primary Angiitis of The Central Nervous System Presented With Acute Onset Massive Infarct in a Young Female

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Introduction: Primary angiitis of the central nervous system (PACNS) is an entity with a very low incidence and prevalence. PACNS represents a rare inflammatory disease affecting the brain and spinal cord. Stroke encephalopathy, headache, and seizure are major clinical manifestations. The diagnosis of PACNS is based on the combination of clinical presentation, imaging findings, (magnetic resonance imaging and angiography), and brain biopsy. In most cases, a brain biopsy is required. Magnetic resonance imaging (MRI) is abnormal in >90% of patients. The clinical presentation of Primary angiitis of the central nervous system (PACNS) is broad and unspecific and the majority of the diagnostic approaches are marked by a low specificity. Thus, PACNS is commonly misdiagnosed and is a diagnostic challenge due to the absence of a true gold standard test. In the absence of such a test, digital subtraction angiography remains a central core of the diagnostic puzzle.

Case description: Here, we present a case of a 30-year-old female who presented with a stroke of sudden onset within 1 day and had a subacute infarct involving the right middle cerebral artery (MCA) territory with Glasgow Coma Scale (GCS) E3V2M3. She was completely paralyzed with Power 0/5 over both upper and lower limbs. She was taking feeding via Ryles tube. All the routine investigations were done, didn't find any clue. Other required investigations did not yield any positive reports. Autoimmune markers were negative also. We did an MRI with magnetic resonance angiography (MRA) followed by digital subtraction angiography (DSA) and finally diagnosed as a case of PACNS.

She was treated initially with mucopolysaccharidoses (MPS), followed by oral steroids and azathioprine. After 4 months, now she can walk on her own without any support and can do her day-to-day activities on her own.

Conclusion: Isolated vasculitis of the central nervous system (CNS) is rare. The process of diagnosing and treating isolated CNS vasculitis often places the clinician on the horns of serial dilemmas. The consequence of missing the diagnosis of CNS vasculitis is the death of the patient; the consequence of delay in diagnosis is likely to be severe disability

Central to Peripheral: an Enigmatic Case of Neurolupus

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A 42-year-old nondiabetic, nonhypertensive female presented with a 3-month history of low-grade, intermittent fever associated with headache and generalized weakness for about 1 week and sudden onset vomiting followed by seizure and altered sensorium on the day of admission. On examination, her Glasgow Coma Scale (GCS) was poor, vitals were stable except for tachycardia and the Babinski reflex was positive on both sides. After initial evaluation, all causes of meningitis were ruled out with relevant investigations. Further inquiries and examinations revealed the presence of long-standing erythematous malar rash, discoid rash on and around the ear pinna, petechial and eczematous rash over the back, and mucosal ulcer over the soft palate. Diagnosis of systemic lupus erythematosus (SLE) was established as clinical and serological pictures met EULAR/ACR criteria. MRI of the brain with and without contrast showed multifocal hemorrhagic encephalitis, suggesting vasculitis. During consultations with the neurologist, we started the patient on pulse steroid therapy followed by oral maintenance steroid therapy. This led to dramatic improvement in the patient, both clinically and radiologically.

But at this point, we found that she has developed quadriparesis with lower limbs involving more than the upper limbs. MRI of the spine showed no significant abnormality. Nerve conduction velocity (NCV) suggested motor axonal polyneuropathy with a differential being diffuse radiculopathy. We decided to initiate cyclophosphamide therapy. Following this, her power improved in all four limbs gradually over a period of 1 month. She was finally discharged with significant improvement in her condition and advised to continue maintenance therapy.

Postdengue Myelin Oligodendrocyte Glycoprotein Antibody-Associated Disease Presenting as Long Segment Transverse Myelitis and Encephalitis

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Introduction: Anti-myelin oligodendrocyte glycoprotein (MOG) autoantibodies cause a pathophysiologically distinct group of central nervous system (CNS) autoimmune diseases which present as optic neuritis, myelitis, or acute disseminated encephalomyelitis (ADEM). MOGAD is often seen in the setting of viral infections but postdengue myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD) is rare. Here, we report a postinfectious case of MOGAD triggered by dengue infection.

Case description: A 21-year-old male patient presented with bilateral lower limb weakness and numbness for 1 day along with urinary retention, altered sensorium, and transient visual problems. He had a fever 2 weeks prior to admission which lasted for 10 days. Examination revealed upper dorsal myelopathy with sensory level at T5 along with a confusional state.

On the evaluation of fever, dengue immunoglobulin M (IgM) was reactive. MRI spine revealed a T2 hyperintense patchy long segment lesion from C2 to conus level. MRI brain shows T2 hyperintense lesions at both the middle cerebellar peduncle, periaqueductal region, and splenium of the corpus callosum. Cerebrospinal fluid (CSF) shows 15 cells/mm^3, lymphocyte predominant, total protein 55 mg/dL. Aquaporin four antibodies were negative and the MOG antibody was positive at 1:20 titer. Symptoms gradually improved following 5 days of intravenous (IV) steroids and during discharge, he had grade III power in his limbs and was started on oral steroids at a tapering dose.

Conclusion: Although MOGAD is typically steroid-responsive and monophasic, our patient is kept under follow-up for any further recurrence. The pathogenesis is thought to be a postinfectious immune-mediated reaction triggered by dengue virus.

Neuromyelitis Optica Spectrum Disorder: Case Series of a Rare Disease

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Introduction: Neuromyelitis optica (NMO); Devic's disease is a rare and aggressive inflammatory disorder of the central nervous system characterized by severe, immune-mediated demyelination and axonal damage which includes recurrent attacks of optic neuritis (ON) and myelitis; the more inclusive term NMO spectrum disorder (NMOSD) was proposed to include individuals with partial forms, and also those with involvement of additional regions in the central nervous system. NMO is more frequent in women than men (9:1), and typically begins in adulthood, with a mean age of onset of 40 years, but can arise at any age.

Case description: Here we present a case report of four patients of age between 15 and 40 years, who presented with focal neural deficits like quadriplegia, monoplegia, blurring of vision, and bowel and bladder involvement, in which three out of four cases have a previous similar history. MRI spine showing longitudinal extensive transverse myelitis (LETM) (in all four cases) and a positive test for aquaporin-4 (AQP4) immunoglobulin G (IgG) (in three out of four cases). Relevant investigations were done to rule out other differential diagnosis. Acute attacks are treated with high-dose glucocorticoids for which they respond. All four cases were put on prophylactic treatment against relapses using immune modulator drugs like mycophenolate mofetil (MMF), azathioprine, and rituximab. Intensive physiotherapy and supportive treatment started for the patients. All patients started to respond clinically and they are no relapses or recurrent attacks in all four cases.

The NMOSD is rare among adolescents, but early diagnosis is important to start adequate therapy to have remission. In this case report, we present cases of four patients with NMOSD and we review the clinical and neuroimaging characteristics, diagnosis, and treatment of NMOSD.

The Effectiveness of Steroids in Nontraumatic Intracranial Hemorrhage

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Introduction: Intracranial hemorrhage (ICH) is the second most common cause of stroke following ischemic stroke and is a major cause of morbidity and mortality across the world. For over 40 years, steroids, thought of as the wonder drug, have been used extensively in neurology but their role in ICH is still controversial. While some studies in the past have shown improved survival benefits with steroids in ICH, others have contradicted it. There have been only a few studies done in the Indian context on this subject. To explore this further, we have done a retrospective observational comparative study on the same.

Materials and methods: We studied 179 cases of spontaneous ICH that met the inclusion and exclusion criteria admitted in Kasturba Medical College, Mangaluru, Karnataka, India between 1st May 2022 and 31st May 2023. Out of the ones studied, 115 cases received intravenous dexamethasone, while 64 cases were managed without steroids. The outcome was measured based on the change in Glasgow Coma Scale (GCS), mortality, days in ICU, days in hospital, and infections during hospitalization, assessed on days 3, 7, and 14 of admission.

Observations: We observed that the group that received steroids had mostly larger bleeds with lower GCS (median GCS 11) compared to the nonsteroid group (median GCS 14). There was a median fall of 3 in GCS in nonsteroid group, whereas the steroid group maintained the same GCS at the end of day 14. It was noticed that there was an improvement in median GCS by 1.5 at the end of day 7 in the steroid group. Around 12.7% of patients in the steroid group had an increase in GCS of >5 compared to 6.5% in the nonsteroid group but the findings were not statistically significant possibly due to the small sample size. It was also observed that patients on steroids were shifted out from the ICU early (by day 3) compared to the nonsteroid group (*p*-value of 0.006). Other outcomes like mortality, days in hospital, and incidence of infection did not show any significant correlation.

Conclusion: This study suggests that the use of steroids might be beneficial in large spontaneous intracranial bleeds compared to the smaller ones and supports a randomized control trial using this approach.

Approach to a Case of Acute Hemorrhagic Encephalitis: a Rare and Fatal Form of Acute Disseminated Encephalomyelitis

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Introduction: Acute hemorrhagic leukoencephalitis (AHLE), also known as Weston-Hurst syndrome, is a progressive inflammatory demyelinating disease. AHLE is a rare and fulminant variant of acute disseminated encephalomyelitis (ADEM). The outcome is usually devastating, with a poor prognosis and a high mortality rate. Although prompt recognition and management can improve the outcomes. Herein, in order to raise awareness of AHLE and its clinical context, we describe a 60-year-old elderly female patient with typical AHLE symptoms and analyze the diagnostic processes, available treatments, and outcomes of AHLE.

Case description: A 60-year-old previously healthy female patient presented at our tertiary care center (Dr Babasaheb Ambedkar Memorial Hospital, Mumbai) with complaints of sudden onset, progressively increasing headache, and a single episode of seizure activity followed by altered sensorium. There was no history of vomiting, photophobia, phonophobia, blurring of vision, neck rigidity, slurring of speech, or limb weakness. There was no history of trauma to the head and neck. There was no history of fever at the time of admission. However, on detailed inquiry, the patient's attendant revealed a preceding history of fever one week ago, which resolved within two days by itself and was not evaluated further.

On examination, the patient was vitally stable but lethargic and confused, opening their eyes to verbal stimuli and localizing pain. Neurological examination revealed bilateral extensor plantar reflex (Babinski reflex).

Contrast-enhanced magnetic resonance imaging (CE-MRI) of the brain revealed subtle hyperintensities on FLAIR and T2-weighted images with blooming on susceptibility-weighted imaging (SWI) sequences in the right occipital lobe and left cerebellar hemisphere and foliae with minimal postcontrast enhancement and no diffusion restriction. The features are likely suggestive of hemorrhagic encephalitis.

Fundoscopic evaluation of both eyes was normal. Cerebrospinal fluid (CSF) analysis revealed increased protein levels and leukocytosis.

The patient was started on injection of methylprednisone 1 gm intravenously for 5 days and showed marked clinical recovery. There was a significant improvement in headache and sensorium. Also, the patient had no seizure activity following admission. On reexamination, the patient was vitally stable, conscious, and oriented, opening their eyes spontaneously and following verbal commands. The patient was then discharged in stable condition.

Conclusion: Acute hemorrhagic encephalitis is a rare and fatal syndrome associated with poor prognosis and high mortality. Diagnosis is equally challenging and early diagnosis plays a crucial role in patient management. Survival may increase if treated promptly.

Neuromyelitis Optica Spectrum Disorder and Tuberculosis Coexistence: Challenging Diagnosis and Treatment

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Background: Neuromyelitis optica spectrum disorder (NMOSD) is a rare autoimmune disorder. **Tuberculosis** (TB) is an important etiology of longitudinal extensive transverse myelitis (LETM) especially in India but it can coexist with NMOSD making the management difficult.

Case description: A 21-year-old female presented with fever, and cough with constitutional symptoms for 1 month. Within the span of 1 week, she developed acute onset paraparesis, a band-like sensation at the level of the umbilicus, urinary incontinence, and a diminution of vision in the right eye. She had flaccid paraparesis, sensory loss below the D10 level, and a positive relative afferent pupil defect (RAPD) test in the right eye (visual acuity 6/60) without cognitive dysfunction or other cranial nerve involvement. Later she developed spasticity with brisk reflexes and extensor plantars.

Clinical and radiological findings led to the diagnosis of pulmonary TB, despite the absence of acid-fast bacilli (AFB) in the sputum. MRI spine showed intramedullary T2 hyperintensity extending from D9 to D11 spinal segments suggestive of longitudinal extensive transverse myelitis (LETM) while the MRI brain showed left pericallosal nonhemorrhagic infarct. CSF had pleocytosis and raised protein levels but CBNAAT was negative and cultures were sterile. Visual evoked potential showed no conduction in her right eye. Screening for human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), and connective tissue diseases was negative. Aquaporin-4 antibodies came positive which confirmed the diagnosis of NMOSD by the International Panel for NMO diagnosis criteria. The patient was pulsed with intravenous (IV) methylprednisolone but did not show any improvement. She was simultaneously started on ATT. We had apprehensions about the potential dissemination of the patient's tuberculosis; however, such an eventuality did not materialize. She was also initiated on intravenous immune globulin (IVIG) but failed to show any improvement. Subsequently, plasma exchange (PLEX) was initiated following which she showed improvement in her visual acuity (6/9) and weakness.

Conclusion: Our case is NMOSD coexisting with pulmonary TB. It is challenging to treat TB simultaneously with NMOSD, given the risk of dissemination. Swift diagnosis, accurate management, and cautious monitoring are essential for the management of these two disorders.

Transforming Medical Education: Leveraging Technology for Enhanced Assessment of Undergraduate Medical Students: a Pilot Study

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Background: The transition from a traditional curriculum of two decades (1997) to the reformed competency-based medical education (CBME) in 2019 brought significant upheaval. Evaluating the practical skills of medical students using conventional methods has proven cumbersome and complex, especially with large cohorts. The demand for consistent assessment, prompt feedback, and comprehensive evaluations mirroring real-life situations has driven innovation. This research tackles these issues by incorporating SimCapture technology to enhance the assessment.

Aim: (1) To explore the viability of technology-enabled formative assessment as a means of augmenting skill acquisition and furnishing real-time, constructive feedback; (2) to derive evidence-based recommendations for refining psychomotor skill training methodologies, aligned with the competency-based framework set forth by the NMC.

Methodology: A study was conducted at Madras Medical College, Chennai, India, involving Trained Faculties of different departments, by integrating SimCapture technology for assessing 250 prefinal year MBBS students, using Peyton's 4 Step Approach, focusing on key domains—student knowledge, technical proficiency, critical thinking, communication skills, and safe practice. The assessment process included online pre-tests, structured checklists, peer-to-peer learning with digital checklists on SimCapture, self-recorded videos, online posttests, and virtual Objective Structured Clinical Examination (OSCE) evaluation.

Results: The integration of SimCapture streamlined data collection and provided a comprehensive analysis of student progress. Individual competencies and cohort-wide performance were revealed through a 360-degree analysis. A digital repository was created, enhancing accessibility and supporting longitudinal analysis. The interactive learning environment improved engagement and empowered students in their skill development journey, promoting retention, application, and overall competence.

Conclusion: The emotional component "feel" plays a pivotal role in changing the attitude and behavior, making the transition process smooth. The adoption of SimCapture redefined assessment practices and contributed to cultivating proficient, confident, and competent medical professionals. The study findings emphasize the potential of technology in shaping medical education and enhancing healthcare provision.

Role of Cerebrospinal Fluid Tap Test and Response Cutoffs to Predict Response to Ventriculoperitoneal Shunt in Patients With Idiopathic Normal Pressure Hydrocephalus

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Background: The cerebrospinal fluid (CSF) tap test is used to select idiopathic normal-pressure hydrocephalus (iNPH) patients for undergoing shunt surgery. Tap test is known to be specific but poorly sensitive in predicting shunt responsiveness according to available literature but appropriate cutoffs to delineate responsiveness are not known.

Objectives: To describe the clinical presentation and tap test parameters in patients who underwent ventriculoperitoneal (VP) shunt for probable iNPH and to correlate postop outcomes with preop tap test parameters.

Methods: The study was conducted in a cohort of patients admitted to the neurology/neurosurgery ward of the All India Institute of Medical Sciences, New Delhi between 2019 and 2023. A total of 17 patients diagnosed with probable, or definite NPH were evaluated and 13 patients were followed up. Data encompassed baseline characteristics, neuroimaging

findings, and assessments using the iNPH grading scale, Boon's gait scale, and modified Rankin scale (MRS) before and after VP shunt surgery.

Results: The baseline characteristics and pre and posttap parameters have been summarized in Table 1.

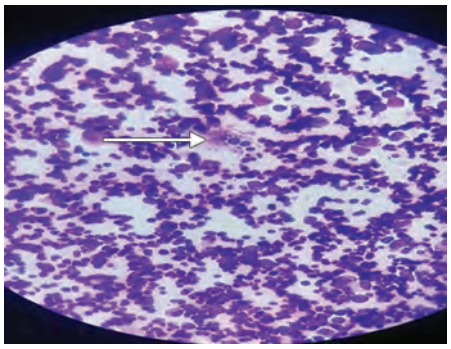
Table 1: Baseline characteristics

Patient characteristics	*Total number (n = 17)*	
Male	14 (82.35%)	
Female	3 (17.65%)	
Age (years)	62.6 ± 10.5 (32–76)	
Gait impairment	17 (100%)	
Urinary symptoms	17 (100%)	
Cognitive impairment	15 (88.24%)	
Median duration of symptoms (months)	24 (2–84)	
Median iNPH score (baseline)	5 (2–12)	
Mean modified Rankin scale (baseline)	2.84 ± 1.06 (2–5)	
Gait scores	Pretap	Posttap
Mean walk score	12.4 ± 4.61 (6–20)	11.14 ± 5.53 (4–20)
Mean step score	7.71 ± 2.61 (3–10)	6.21 ± 2.93 (1–10)
Mean gait score	27.06 ± 8.11 (14–38)	22.8 ± 9.93 (10–38)

Table 2: Area under ROC to predict MRS decrease following shunt

Parameters	*AUC*
Change in step score	0.56 (95% CI 0.26–0.87)
Change in time score	0.36 (95% CI 0.05–0.65)
Change in walk score	0.61 (95% CI 0.30–0.92)
Change in gait score	0.63 (95% CI 0.32–0.94)
Change in iNPH score	0.40 (95% CI 0.16–0.65)

The highest AUC 0.63 (95% CI 0.32–0.94) was observed for the change in gait score in predicting MRS change following surgery (Fig. 1). A decrease of ≥ 4 points in gait score demonstrated 83.3% sensitivity and 33.3% specificity in predicting MRS change



Conclusion: In patients with iNPH, a ≥4-point decrease in the gait score can be used as a predictor of shunt responsiveness. Further prospective studies are warranted to establish the utility of tap test parameters in the assessment of iNPH patients.

Clinical Profile and Comparison Between Magnetic Resonance Angiography and Digital Subtraction Angiography in Young Ischemic Stroke and Their Impact on TreatmenT

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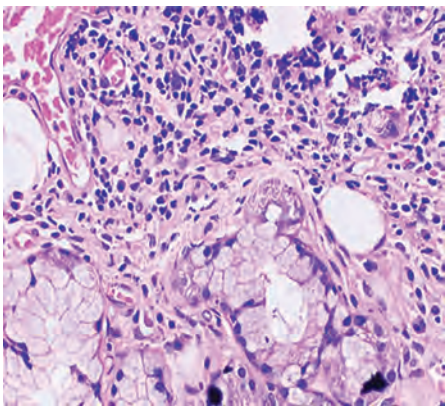
Introduction: Stroke is the second leading cause of death worldwide. A stroke is defined as an abrupt onset of neurological deficit that is attributable to a focal vascular cause. Stroke in young adults is less frequent than in older populations but has a significant impact on their productive years lost. Etiologies for young strokes are extensive and variable. Visualization of blood flow both in intracranial and extracranial blood vessels is essential for the diagnosis and treatment of cerebrovascular disorders. Vascular abnormalities such as blockage, narrowing, or malformations can be visualized precisely in digital subtraction angiography (DSA) and are widely used to assess blood flow during neurovascular interventions of stroke



Aim: To investigate the relevance of performing DSA in addition to magnetic resonance angiography in young ischemic stroke.

Objectives: To determine the distribution, pattern, and severity of extracranial and intracranial arterial stenosis.

To evaluate the impact on stroke management

Materials and methods: Study design—retrospective.

Study period: June 2022 to June 2023.

Sample size: 27.

Study place: Hindu Mission Hospital, Chennai, Tamil Nadu, India.

Inclusion criteria: All patients who are >18 years and <45 years of age, presenting with ischemic stroke

Those who underwent both MRA and DSA.

Observations: On 6/27 (22.2%) patient DSA showed significant arterial stenosis compared to MRA (which showed a normal study). A total of 13/27 (48.14%) patients were treated with anticoagulants and antiplatelets. A total of 7/27 (25.92%) patients were thrombolysis. A total of 4/27 (14.8%) patients were underwent mechanical thrombectomy. A total of 3/27 (11.11%) patients were underwent carotid stenting.

Results: Six among 27 patients had a hypercoagulable state. One patient had lupus anticoagulant positive. Two patients had antinuclear antibody (ANA) positive. Three patients were found to have hyperhomocysteinemia. A total of 8/27 patients had preexisting cardiovascular problems. A total of 10/27 (37.03%) patients had Internal carotid artery occlusion. A total of 6/27 (22.22%) had middle cerebral artery occlusion. Four patients who had mechanical thrombectomy showed early and complete recovery compared to others. In young ischemic stroke patients, DSA would be better as it has the advantage of doing mechanical thrombectomy and intravascular stenting.

Conclusion: Therefore, DSA plays a significant role in reducing future cerebral vascular insult. Since variable etiology of ischemic stroke in young patients, combined clinical, laboratory, imaging, and invasive (DSA) workup is needed for better outcomes. Due to the smaller sample size of this study, further larger prospective studies are necessary to determine the indications of DSA in this age-group to assess better outcomes.

Prospective Observational Study of Clinical and Laboratory Profile with Outcome in Patients of Guillain–Barré Syndrome with Autonomic Dysfunction

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Introduction: Guillain–Barré syndrome (GBS) is an autoimmune condition affecting peripheral nerves, characterized by rapid limb weakness and sensory loss. Autonomic dysfunction, seen in up to two-thirds of cases, complicates diagnosis and can lead to mortality if untreated. A multidisciplinary approach, ensuring comprehensive care for patients, particularly those with autonomic complications is crucial.

Aims and objectives: To study the prevalence, laboratory profile, clinical spectrum, and factors associated with outcomes in patients of GBS with autonomic dysfunction.

Materials and methods: This was a prospective observational study with 48 participants who fulfilled the inclusion and exclusion criteria and were enrolled in the study after written and informed consent after approval from IEC. All the patients were closely observed for the signs and symptoms of autonomic dysfunction. All the data was retrieved once every 24 hours for the first 5 days and the results were studied.

Observation: The mean age of the study population was 40 years hypertension was the most common morbidity seen in 16.7% of cases. Autonomic dysfunction was prevalent in 58.33% of patients, with tachycardia being the most common autonomic finding at 45.8%. Paraparesis was the most common presenting complaint, seen in 93.8% of patients and 58.3% of patients had no symptoms before the onset of disease. In patients with autonomic dysfunction, the AMAN variant was the most common finding, accounting for 35.1% of cases. There is a significant association between age-groups and outcome, with mortality being particularly significant over the age of 60, where it reached 50%. Patients of GBS with autonomic dysfunction showed distinct lab parameters but the association between lab parameters and outcome was not significant

Conclusion: Autonomic dysfunction is present in more than half of the patients. Autonomic dysfunction was most commonly seen in the AMAN variant. There is no significant association between outcomes, motor, and sensory symptoms amongst GBS patients with autonomic dysfunction. Mortality is high in the elderly population.

Admission C-Reactive Protein After Acute Ischemic Stroke Is Associated With Stroke Severity And Mortality: An Observational Study

Abhilash Umak

Background: Growing data suggests that inflammation is critical to atherogenesis. C-reactive protein (CRP), an inflammatory marker, has been linked in the past to outcomes of strokes and vascular events in the future. It is unclear if this is caused by an epiphenomenon or a direct dose-response impact. We looked at how early-measured CRP after a stroke affected functional outcomes, death, and subsequent vascular events.

Methods: A total of 100 ischemic stroke patients who were admitted within 24 hours of the onset of symptoms were prospectively evaluated. At the time of admission, CRP and the NIH stroke scale (NIHSS) were measured. The modified Rankin scale (MRS) was used to assess short-term functional outcomes seven days following admission.

Results: Increased stroke severity (NIHSS, OCSP) was linked to increasing CRP ($p = 0.01$, $p = 0.006$). Only 60% of the high-CRP group experienced a minor stroke, compared to 71% of the low-CRP group who experienced one. The most prevalent stroke subtype in the high CRP group was total anterior circulation infarct (TACI) (29%), whereas partial anterior circulation infarct (PACI) (41 and 49%) was the most prevalent presentation in the low and medium CRP groups. On the MRS, CRP was linked to a short-term functional result ($p = 0.04$), with a high CRP group having a 44% probability of a poor outcome and a low CRP group having a 26% risk.

Conclusion: When tested at least 24 hours after stroke onset, admission CRP is related to the severity of the stroke and long-term mortality. High CRP has a shaky correlation with short-term functional prognosis, which is probably related to the severity of the stroke. After an ischemic stroke, CRP is an independent predictor of long-term death.

Non-Traumatic Myelopathy: Clinical and Radiological Insights From a Tertiary Care Center

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Introduction: Nontraumatic myelopathies are complex spinal disorders from varied causes, challenging due to multifaceted features and potential clinical overlap. Impacting functions and psychosocial well-being, this study explores such cases at Osmania General Hospital.

Objectives: Explore clinical and radiological profiles. Determine compressive/noncompressive etiology prevalence. Evaluate clinical-radiological spinal segmental alignment.

Materials and methods: The study included 50 nontraumatic myelopathy patients at Osmania General Hospital.

Observations: A total of 50 patients—30 males (60%) and 20 females (40%), mean age of 42.

Common presentation: Paraparesis (80%), quadriparesis (20%).

Clinical onset: Acute 50%, chronic 30%, subacute 20%. Prevalence: compressive myelopathy 60%, noncompressive 40%.

Compressive myelopathy causes: Degenerative (50%), TB spine (30%), secondary tumors (10%), and others (10%)—epidural abscess, ligamental ossification, and AVM.

Noncompressive myelopathy causes: Idiopathic acute transverse myelitis (ATM) (40%), postinfectious, neuromyelitis optica spectrum disorder/myelin oligodendrocyte glycoprotein (NMOSD/MOG), subacute combined degeneration (SACD), multiple sclerosis (MS); rare causes— sarcoidosis, systemic

lupus erythematosus (SLE), human immunodeficiency virus (HIV) myelopathy.

Compressive myelopathy: A total of 70% aligned clinically and radiologically within ±1 segment, 30% within ±2 segments. Clinical-radiological alignment in acute transverse myelitis of eight cases.

Conclusion: The study emphasizes the prevalence of degeneration in compressive myelopathy and idiopathic transverse myelitis dominance in non-compressive myelopathy. Stronger clinical-radiological agreement in compressive myelopathy was noted.

Unveiling Stroke in Young Profile: Etiological Insights and Clinical Trajectoriesin A Tertiary Hospital

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Introduction: Stroke in young adults (18–45 years) is a growing concern, especially in developing countries, causing significant morbidity and mortality. This study aimed to assess arterial ischemic stroke in this age group, focusing on etiology, risk factors, and outcomes.

Aims and objectives: To study the etiology and clinical outcome of stroke in young adults (18–45) in Osmania General Hospital.

To assess the morbidity and mortality of strokes in young adults.

Materials and methods: A total of 75 young adults in Osmania General Hospital.

Results: The study included 54 males and 21 females, mean age of 39.4 (SD 9.5) years at stroke onset.

Smoking, alcohol, and dyslipidemia are significantly more common in the study group.

Etiological categorization of stroke: Around 78% (58 patients), unknown in others.

Atherothrombotic stroke: Around 40%, cardioembolic stroke—16%.

Other etiologies: Hyperhomocysteinemia (4%), autoimmune (8%), antiphospholipid syndrome (4%).

A total of 21 patients had hyperhomocysteinemia, with 16 linked to atherosclerosis-caused ischemic stroke.

Outcome assessed with NIHSS and MRS at baseline and 3 months. After 3-month follow-up, 50% (38) were independent or mildly disabled.

Fatality rate: Almost 2%.

Conclusion: Ischemic stroke in young adults leans towards males, linked to modifiable factors like smoking, alcohol, and dyslipidemia. Atherothrombotic etiology prevails. Mortality is low, functional outcomes are mostly favorable. The age range spans 21–45 years.

Diagnostic and Prognostic Value of Left Atrial Function in Identification of Cardioembolism And Prediction of Outcomes in Patients with Cryptogenic Stroke

Ameen Ahsan V, Ramesh S S

Introduction: Embolic stroke of undetermined source (ESUS) accounts for 20–30% of ischemic strokes. Atrial dysfunction or "cardiopathy" diagnosed through serum, electrocardiographic, and echocardiographic biomarkers has been recently introduced as a potential mechanism of embolism in ESUS. The latest research suggests that atrial cardiomyopathy may exist without atrial fibrillation (AF), independently of left atrial (LA) size, and can facilitate the development of AF and cardioembolic stroke

Objectives: To study the associations between left atrial volume index (LAVI) and embolic stroke subtypes and AF detection on cardiac event monitoring in patients with embolic stroke of unknown source.

Materials and methods: Patients with ischemic stroke are admitted to a tertiary care center. The stroke subtype was classified into cardioembolic stroke, noncardioembolic stroke of determined mechanism (NCE), or ESUS. Univariate and prespecified multivariable analyses were performed to assess associations between LAVI and stroke subtype and AF detection in patients with ESUS.

Results: Of 40 consecutive patients identified during the study period, 40 (100%) underwent transthoracic echocardiography and had left atrial volume index (LAVI) measurements. LAVI was greater in patients with cardioembolic stroke than NCE but not in ESUS versus NCE. In multivariable logistic regression models, LAVI was greater in cardioembolic stroke versus NCE but not in ESUS versus NCE. Among 24 patients with ESUS who underwent cardiac monitoring, 18.2% had AF detected; LAVI was independently associated with AF detection in ESUS.

Conclusion: LAVI is associated with cardioembolic stroke as well as AF detection in patients with ESUS, two subsets of ischemic stroke that benefit from anticoagulation therapy. Patients with increased LAVI may be a subgroup where anticoagulation may be tested for stroke prevention.

N-Terminal Probrain Natriuretic Peptide as a Marker for Risk Stratification and Prediction of Functional Outcome in Acute Ischemic Stroke

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Introduction: Stroke is the second leading cause of mortality and disability worldwide. India has one of the highest case fatality rates. Large proportions of stroke survivors are left behind with significant disability. Assessing stroke severity, and predicting morbidity and mortality are essential while taking treatment decisions and counseling. Traditionally used tools like the National Institutes of Health Stroke Scale (NIHSS) are not reliable in predicting mortality. Studies have shown B-type natriuretic peptide (BNP) and N-terminal pro-B-type natriuretic peptide (NT-proBNP) are elevated in acute stroke. This study aims to assess the prognostic importance of NT-proBNP in stroke.

Materials and methods: It is a prospective observational study, studied on 64 consecutive patients, serum NTproBNP was measured on the day of admission and on day 7. Stroke severity was assessed by NIHSS on the day of admission and functional disability was calculated by the Barthel index in 3rd month. Data were entered in Microsoft Excel and statistical analysis was done. A *p*-value of and lt; 0.05 was considered significant.

Observations: The average NIHSS on the day of admission was 12.81 (7), and it was 20.2 (5.882) among the deceased. The median NTproBNP on admission was 776.70 (1023.6) pg/mL it was significantly elevated in deceased 2014.65 (1320.546) compared to survivors 328.94 (239.353). NTproBNP is strongly associated with stroke severity (NIHSS) (R2 = 0.522; Spearman correlation coefficient = 0.843, *p*-value < 0.001) and functional outcome (BI) (R2 = 0.824; spearman correlation coefficient –0.923, *p*-value <0.001) at 3 months. On ROC analysis, Serum NTproBNP of 960 pg/mL had sensitivity and specificity of 94.1 and 97.9% in predicting mortality, and a value of 435.1 pg/mL had a sensitivity and specificity of 90 and 81% in predicting disability.

Conclusion: NTproBNP is significantly elevated in patients after stroke and is strongly associated with stroke severity and functional outcome at 3 months. Measuring serum NTproBNP on the day of admission can predict mortality and functional dependence after acute ischemic stroke.

Assessment of Improvement of Tremors in Spinocerebellar Ataxia Patients Following Treatment With Magnetic Resonance-Guided Focused UltrasounD

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Introduction: This study is a prospective observational study in patients with spinocerebellar ataxia. The improvement is assessed using the clinical rating scale for tremor (CRST) and quantitative evaluation of stance and gait (QUEST) Scoring on postprocedure day one. The primary endpoint is improvement in tremors.

Materials and observations: Preprocedure average of CRST and QUEST scores in these patients were 85.8 and 192.2 respectively whereas the postprocedure average of CRST and QUEST scores in these patients were 53 and 117.4, respectively. The patient had reasonable improvement in tremors. The overall improvement in patients' tremors and quality of life assessed using CRST and QUEST scoring were 38.91 and 38.22%, respectively.

Conclusion: Treatment using MRgFUS showed a reasonable improvement of approximately 40 percent without any significant adverse effects. Compared to other treatment modalities, it provided a good outcome for patients with spinocerebellar ataxia.

A Cross-Sectional Study of Prognostic Importance of Lipid Profile, Plasma Glucose Level, and Glycated Hemoglobin Levels in Patients with Acute Ischemic Stroke

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Introduction: Stroke ranks first amongst all CNS diseases both in frequency and gravity. Dyslipidemia and hyperglycemia are two metabolic disorders frequently seen in stroke patients. Hyperglycemia, poor glycemic control, and dyslipidemia together in stroke patients have not been well researched. Hence, the present study was undertaken to determine the effects of elevated fasting blood sugar (FBS), hemoglobin A1c (HBA1C), and lipid profile on the severity, and prognosis in patients with cerebral infarction during hospital stay.

Materials and methods: The study included 120 cases of acute ischemic stroke. Relevant history was taken and after a thorough examination, required investigations were performed including blood sugar indices and lipid profile. The outcome was taken as survived or died. All analysis was carried out by using Statistical Packages for the Social Sciences (SPSS) software version 26.

Observations: The mortality rate in the present study was observed as 9.2%. High admission glucose levels, poor glycaemic control, and lipid parameters like total cholesterol (TC), high-density lipoprotein (HDL), and very low-density lipoprotein (VLDL) were significantly associated with poor outcomes in stroke patients. On multivariate analysis, however, admission glucose and high TC levels were observed as the only significant predictors of mortality. On ROC curve analysis, an optimal cutoff of was observed as blood glucose levels and gt; 160 mg% (AUROC—0.707; sensitivity and specificity—72.7 and 60.6%) and TC and gt; 170 mg% (AUROC—0.735; sensitivity and specificity—81.8 and 67.9%).

Conclusion: The present study concludes that high TC (gt; 170 mg%) and stress hyperglycemia (> 160 mg%) at admission had a prognostic role and were associated with less-favorable outcomes of acute stroke patients.

A Rare Presentation of Peripheral Nerve Hyperexcitability: Cramp Fasciculation Syndrome in Association with Contactin-Associated Protein 2 Antibodies

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Background: This is a distinctive case that details the presentation and evaluation of an elderly male who displayed involuntary twitching of calf muscles. Peripheral nerve hyper excitability disorder called cramp-fasciculation syndrome is a rare condition, despite the presence of distinguishing characteristics a significant overlap exists with other nerve hyper excitability syndromes and fatal diseases. Leucine-rich glioma-inactivated 1 (LGI1) and contactin-associated protein-2 (CASPR2) are associated proteins of voltage-gated potassium channel (VGKC) antibodies which are present in a proportion of patients with peripheral nerve hyperexcitability (PNH) disorders. CASPR2 is expressed in both the central and peripheral nervous system with appropriate localization of VGKC depending on it.

Case presentation: An elderly male presented with stiffness and involuntary twitching of calf muscles with findings of paresthesia, and hyperreflexia of deep tendon reflexes (DTR) with no evidence of any muscle wasting or involvement of higher mental functions. His total blood count, liver function, urinalysis, renal function, thyroid profile, serum magnesium, serum creatine kinase, and serum (iPTH) levels were all within normal ranges. Electromyography (EMG) report showed fasciculation potentials with no polyphasic muap's and contactin-associated protein-2 (CASPR2) auto antibodies positive. contrast-enhanced computed Tomography (CECT) and whole-body positron emission tomography (PET) scans ruled out the presence of other autoimmune disorders and malignancies.

Conclusion: This rare presentation of cramp fasciculation syndrome associated with CASPR2 antibodies had a good response to oral carbamazepine and methylprednisolone with which the patient had clinical improvement.

Oncology

AML Masquerading as Seronegative Arthritis

Taranpreet Kaur

Background: Acute leukemias presenting solely as arthritis is rare in adults and constitutes only 6–13% of cases. Here, we present a case of acute monocytic leukemia, who presented to us with symmetrical polyarthritis, lymphadenopathy, and anemia.

Care description: A 46-year-old gentleman presented with chief complaints of pain and swelling in small joints of upper and lower limbs for the last 1.5 years. It was symmetrical, associated with swelling in joints, and early morning stiffness (EMS) greater than 30 minutes, with no joint deformity.

On examination: Performance status Eastern Cooperative Oncology Group III.

Body mass index (BMI): A 14 kg/m^2, tenderness and swollen proximal interphalangeal (PIP), distal interphalangeal (DIP), and metatarsophalangeal (MTP) joints, and sternal tenderness were present.

Enlarged cervical lymph nodes: Largest two multiplied by 2 * 2.5 cm, firm to hard in consistency, nonmatted, and nontender. No hepatosplenomegaly and no axillary/inguinal LAP.

Investigations: Complete blood count (CBC) hemoglobin (Hb)—4.4 gm/dL), total leukocyte count (TLC)—14530/mm^3, differential leukocyte count (DLC)—neutrophils 74%, lymphocytes 4%, monocytes 6%, eosinophils 3%, blasts 4%, myelocytes 3%, metamyelocytes 6%, and platelet

count—88,000/mm^3. Peripheral blood film (PBF) Suggestive of myelophthisic anemia or aleukemic leukemia.

Autoimmune workup, rheumatoid factor (RA factor), anti-cyclic citrullinated peptide (anti-CCP), and human leukocyte antigen B27 (HLA B27) were all negative.

Bone marrow (BM) biopsy: Suggestive of acute myeloid leukemia.

Flow cytometry: Acute myeloid leukemia with monocytic differentiation.

Fine needle aspiration cytology (FNAC) of submandibular lymph node: Suggestive of leukemic infiltration.

The final diagnosis of acute myeloid leukemia with monocytic differentiation with leukemic arthritis was made. Nevertheless, leukemic arthritis requires demonstration of leukemic cells in synovial fluid, but the fluid was untappable in this patient.

The further course of action and management was discussed with the patient and his attendants, but they refused further treatment and took leave against medical advice.

The patient had been to many consultants and was diagnosed with seronegative arthritis and put on various painkillers and disease-modifying antirheumatic drugs (DMARDs) for arthritis, and he was referred to our center only for blood transfusion. The case highlights that a holistic approach to a patient while making a diagnosis should be followed, and a broader perspective to be considered.

Head and Neck Lymphedema Complicating Metastatic Squamous Cell Carcinoma of the Tongue

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Introduction: Lymphedema, swelling caused by impaired tissue drainage as a result of lymphatic dysfunction, has long been recognized as a potentially serious disease sequelae or a complication of treatment for patients with genitourinary, breast, and head and neck malignancies. Although lymphedema is a relatively common complication of head and neck cancer (HNC), very few cases have been reported with lymphedema involving all facial structures. Also, the overall prevalence of HNC is only 3–5%, hence, facial lymphedema is relatively less prevalent when compared to cancers of the breast and genitourinary system.

Case: A 59-year-old male was admitted to the intensive care unit (ICU) with complaints of face and eyelid swelling for the past 21 days. It was insidious in onset, painless, and gradually progressed over the past 21 days. The patient had a known case of squamous cell carcinoma of the tongue diagnosed 1 year prior, for which he had undergone right hemiglossectomy and modified radical neck dissection and received twenty-five cycles of radiotherapy. Computed tomography (CT) of the face, neck, and chest showed marked thickening of the skin with marked diffuse subcutaneous edema in the neck, entire scalp, upper lip preseptal compartment of both orbits, bilateral eyelids, and face, suggestive of lymphedema with multiple metastatic lesions in both lungs and the fourth thoracic vertebra (d4 vertebra).

The patient was administered traditional complete decongestive therapy but did not respond to the same due to the severity of the lymphedema. The patient eventually succumbed to sepsis during the hospital stay.

Conclusion: Head and neck lymphedema (HNL) is one of the complications of head and neck cancer (HNC). HNL has physical as well as psychological effects on the patients, including cosmetic impairment and affecting the quality of life, impairing speaking, reading, and listening and causing respiratory compromise as well. Due to the multiple implications of this condition, it is imperative to find an adequate therapeutic strategy for the patients. Complete decongestive therapy is the current gold standard technique in order to manage HNL complicating a case of HNC along with adequate counseling of the patient.

Malignant Pleural Mesothelioma

Chippada Yasasree

Malignant pleural mesothelioma is a slow-growing, aggressive cancer of the pleural surface associated with previous exposure to asbestos, with a latency period of 20–25 years between exposure and disease presentation. It is a rare malignancy with few treatment options.

It usually presents with breathlessness, a dry cough, and chest tightness.

Here we present a case of 55/f who was treated with two cycles of pemetrexed and cilastin but lost follow-up.

Thoracic Compressive Myelopathy a Rare Presentation of Non-Hodgkin's Lymphoma

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Introduction: Non-Hodgkin's lymphomas (NHL) are cancers arising from mature B, T, and NK cells. Spinal cord compression is a rare presentation of NHL, found in 0.1–0.3% of NHL patients. It occurs due to isolated deposits in the spinal canal or extension from adjacent nodal masses and bony involvement. Identifying NHL as the cause of neurological symptoms is challenging, given these atypical disease manifestations.

Case description: A 23-year-old male presented with a 2-month history of insidious onset and gradually progressive low backache, followed by asymmetrical, gradually progressive paraparesis for 1 month. He also experienced urinary incontinence involving the bladder, with no history of trauma, vision loss, diplopia, facial deviation, dysphagia, or dysarthria. His past and family medical history were non-contributory.

Physical examination revealed generalized nonmatted, soft lymphadenopathy, with no pallor, icterus, clubbing, or edema. Pulse rate was 88/minute, and blood pressure was 110/70 mm Hg.

On the central nervous system (CNS) examination, higher mental function was normal with no craniopathies. Motor examination showed spastic paraparesis with 1/5 power in both lower limbs and 5/5 in both upper limbs, exaggerated deep tendon reflexes in lower limbs, normal deep tendon reflexes in upper limbs, and extensor plantar reflex. Sensory examination indicated a loss of primary modalities of sensation below the T6 level with the upper motor neuron (UMN) bladder. No cerebellar abnormality or peripheral nerve involvement was noted, and there were no spine or skull deformities.

Investigations: Hemoglobin of 11 gm/dL, total count of 7750/µL, differential count—neutrophil—6480/µL, lymphocyte—550/µL, monocyte—310/µL, total platelet count of 308,000/µL. Renal function test, lipid function test, thyroid function test, and liver function test were normal. Peripheral smear indicated mild microcytic hypochromic red blood cells (RBCs) with neutrophilia. Chest X-ray showed normal findings.

The MRI of the dorsal spine revealed secondary deposits in the dorsal spine associated with a soft tissue component from the posterior aspect of the D7, D8, D10, D11, and D12 vertebral bodies causing cord compression and cord ischemia, particularly at D6, D7, D8, and D11 levels, with a large soft tissue component in the posterior elements of D6-11 levels.

Ultrasound (USG) of the neck revealed bilateral multiple cervical lymphadenopathies. USG of the bilateral inguinal region and scrotum showed inguinal lymphadenopathy, while USG's abdomen revealed mesenteric lymphadenopathy.

Fine needle aspiration cytology (FNAC) of cervical lymph nodes indicated a good number of atypical lymphocytes, slightly larger than normal lymphocytes, with a high N/C ratio, coarse nuclear chromatin, and a few large atypical cells with prominent nucleoli, suggestive of Non-Hodgkin's lymphoma.

The patient was referred to the departments of clinical hematology and neurosurgery for further management.

A Rare Case of Retroperitoneal Sarcoma Masquerading as Cauda Equina Syndrome

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Introduction: Retroperitoneal sarcomas are rare tumors accounting for 0.1–0.2% of all malignancies and 10–20% of all soft tissue sarcomas. They are common in the 5th–6th decade of life but can affect any age group. They arise from soft tissues of fibrous and adipose origin.

Case presentation: An 18-year-old male patient was admitted to the medicine ward of Silchar Medical College on 26th July 2023 with the chief complaints of low backache for 1.5 months, weakness of b/l lower limbs for 1 month, inability to pass urine and difficulty in passing stool for 1 month.

On examination: Decubitus was supine with b/l foot drop. Spinal tenderness at the level of L3-L4 vertebra, Tone reduced in both lower limbs, power 0/5 of both lower limbs, sensations were reduced below knees bilaterally, deep tendon reflexes absent, plantar B/L no response. There was also a decubitus ulcer over the sacral area. He had urinary retention and constipation.

Laboratory: Total lung capacity (TLC)—7460, red blood cells (RBC)—3.81, hemoglobin (Hb) —10.8, alanine aminotransferase (ALT)—58, serum creatinine (S. Creat)—0.5, S. sodium—129, S. potassium 4.3, random blood sugar (RBS) —84

The patient was given Inj methylprednisolone 1 gm for 5 days. However, there was no change in his symptoms. MRI LS spine was advised.

Magnetic resonance imaging whole spine: Large T1/T2 lesion noted with epicenter in the right retroperitoneum showing restriction on DWI/ APC sequence and heterogenous enhancement on post contrast. Superiorly, upto T10-T12 vertebra, inferiorly upto L5. Medially extending through neural foramina to involve thecal sac from T12-L5 for a length of 15 cm causing grade III cauda equina stenosis and severe cauda equina compression. The lesion is crossing the midline.

The patient was referred to a higher center for further management.

Discussion: Most retroperitoneal tumors are malignant, and about one-third are soft tissue sarcomas. They don't produce symptoms until they grow large enough to compress contiguous

structures, although pain, early satiety, and obstructive gastrointestinal symptoms may occur early in some patients. In this case, the patient presented with cauda equina compression due to retroperitoneal sarcoma. He presented with early signs of low backache with progression to neurological signs and development of bladder dysfunction completing the complex of CES. As presented in this case, the mass effect of a tumor lesion was noted in the spinal canal. Physicians should be aware of "red flag" symptoms of severe low backache. Once these are identified, MRI helps in diagnosing CES. If images suggest CES, urgent surgery is the treatment of choice.

Epidemiology and Survival of Germ Cell Tumours at Tertiary Care Center, India: A Retrospective Analysis

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Introduction: The prevalence of testicular germ cell tumors, a type of neoplasm that predominantly impacts young male adults and adolescents, has exhibited a rising trend in recent decades. This study examines testicular germ cell tumors presented to the oncology department of a tertiary referral center in terms of epidemiology, treatment, and survival.

Methods: This was a retrospective analysis of 50 testicular germ cell tumors that were histologically confirmed at our center from 2017 to 2023. Patients were appropriately staged using imaging and pre and postoperative tumor markers. After high inguinal orchiectomy, the patient received adjuvant chemotherapy tailored to the patient's disease stage.

Observation: The median age of the study population was 33 years. The age group that was most commonly impacted was between 25 and 40 years. The incidence of seminoma and nonseminoma was 28% (14 cases) and 72% (36 cases), respectively. The testis was identified as the major site in 94% of cases, while the mediastinum was the predominant location in 6% of cases. The occurrence of metastasis was observed in 68% of cases at the time of initial presentation. Upon diagnosis, the distribution of stages I, II, and III was determined to be 44, 24, and 32%, respectively.

Conclusion: The majority of cases had metastasis at the time of diagnosis, indicating an advanced stage of the disease. Additionally, the high median overall survival suggests that treatment options and advancements in care have improved the outcomes for patients with this type of cancer.

Variables	*Number*
Age	Median 33 years <median 24 >median 23
Primary site	Testicular (94%) Mediastinal (6%)
GCT	Seminoma (28%) Nonseminoma (72%)
Stage of disease	I (44%) II (24%) III(32%)
Tumor markers Pre-op	S0 (42%) S1(50%) S2(8%) S3(0%)
Metastasis	No (32%) Yes (68%)
Recurrence	Yes (4%) No (96%)
Chemo protocol	BEP (72%) EP (20%)
Surgery	Yes (100%) No (0%)

Poisoning and Toxicology

Extracorporeal Therapy in The Management of Acute Poisoning: Rajarajeswari Medical College and Hospital (RRMCH) Experience of Three Cases

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Introduction: We report to you a series of three cases of acute poisoning in which extracorporeal therapy was done. The extracorporeal treatment represents a treatment modality promoting the removal of endogenous or exogenous poisons and supporting or temporarily replacing a vital organ. ECTR's are required in 0.1% of intoxications.

Case 1: A 56-year-old male patient who is a k/c/o of seizure disorder, was brought to emergency with A/H/O of consumption of unknown compound of unknown quantity and past H/o phenobarbitone poisoning. On presentation, the patient had low GCS and low saturation. Urine barbiturate was 2+. Forced alkaline diuresis was initiated and tapered within 24 hours. Serum phenobarbitone was found to be 80 mcg/mL and Serum creatinine was 3.2 mg/dL. A nephrologist's opinion was taken and hemodialysis was initiated.

Hemodialysis was initiated, a total of four sessions of HD were done and serum phenobarbitone levels dropped to 22 mcg/mL after 4th HD session. The patient's GCS improved and got discharged.

Case 2: A 26-year-old male patient was brought to emergency with A/H/O consumption of about 250 mL of paraquat (24% W/V) along with alcohol. On presentation, the patient had normal GCS with stable vitals. The patient presented within 1 hour of consumption, so gastric lavage with normal saline was initiated. Urine dithionate tested positive and Serum Paraquat levels were 0.2 mg/L. A nephrologist's opinion was taken and hemoperfusion was initiated.

The patient was initiated on supportive treatment and hemoperfusion was initiated within 4 hours of consumption. Around 4 hours of hemoperfusion was done. On the 2nd day of admission, the patient developed ARDS necessitating mechanical ventilation however the patient succumbed to death.

Case 3: A 23 years old female who is a k/c/o seizure disorder and mental retardation, was brought to emergency with A/H/O consumption of (Tab. phenobarbitone 600mg + Tab. phenytoin 100 mg) of about 15–20 tablets; (Tab. phenytoin 100mg) of around 8 tablets and (Tab. Risperidone 1mg) of about eight tablets. On presentation, the patient was unconscious and GCS was 10/15. Serum phenytoin was >49 mcg/mL and serum phenobarbitone was >11 mcg/mL. A nephrologist's opinion was taken and hemodialysis was initiated.

Four sessions of dialysis were done and the serum phenytoin level dropped to 13.6 after 4th HD session. The patient's GCS improved and got discharged.

Conclusion: Poisoning is a medical emergency and in severe cases, extracorporeal treatments may be urgently required to prevent or reverse major toxicity. The different options include- intermittent HF, HDF, CRRT, hemoperfusion, exchange transfusion, and Peritoneal dialysis. Criteria for considering ECRT in acute poisoning are—(1) progressive deterioration in spite of intensive care, (2) severe intoxication with depression of midbrain function, (3) impairment of normal drug excretory function, and (4) intoxication with drugs having delayed effects and extractable drugs. Hence, drugs having the following characteristics can be subjected to ECRT—low molecular weight, low protein binding, low volume of distribution, water-soluble, and low redistribution effect. Out of the three consecutive cases of poisoning that were managed, two survived and one died. Therefore, ECRT can be used in case of acute poisoning to decrease the mortality related to it.

Elevation of Serum Creatinine Phosphokinase Level as a Marker for Severity in Acute Organophosphorus Poisoning

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Introduction: Organophosphorus (OP) poisoning has become an epidemic in developing countries like India. Estimating serum creatinine phosphokinase (CPK) levels is a cost-effective method. CPK levels elevate in both acute and intermediate syndrome. Serum CPK level serves as an economical and readily available prognostic marker for acute OP poisoning.

Aims and objectives: The study aims to establish a correlation between serum CPK levels and the severity of OP poisoning.

Materials and methods: This prospective observational study involved 50 patients admitted with a history of OP poisoning in the Department of General Medicine at Chalmeda Anand Rao Institute of Medical Sciences over one year. Serum CPK levels were measured upon admission, and correlations were examined with various outcomes.

Results: The study demonstrated a statistically significant positive correlation between initial CPK levels and the severity of OP poisoning, assessed by the POP scale and atropine requirement on day 1. Cases with higher initial CPK levels showed poorer outcomes.

Conclusion: Serum CPK levels can serve as a marker to stratify the severity of acute OP poisoning.

The Outcome of Paraquat Poisoning with Steroid Use: a Retrospective Study

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Introduction: Paraquat, a rapidly acting non-selective herbicide, stands as a leading cause of fatal poisoning in India, with a high case fatality rate upon accidental or deliberate ingestion. While the management of paraquat poisoning generally involves symptomatic treatment, the use of immunosuppressive agents has shown comparatively improved outcomes. This study compares outcomes between patients who received steroids and those who did not.

Materials and methods: This retrospective study retrieved patients diagnosed with paraquat poisoning between 2018 and 2023 from the medical records department of KIMS, Bhubaneswar. The study analyzed patient outcomes in terms of survival or death among groups treated with or without steroids, considering the type of steroid used (dexamethasone/methylprednisolone), and assessed the occurrence of complications in both groups.

Observations: A total of 34 cases were studied, with a male-to-female ratio of 1.75:1 and a mean patient age of 30.32 ± 12.12. Among the 34 cases, 23 (67.64%) received steroids, with 11 (47.82%) surviving and 12 (52.17%) deceased. Comparatively, among the 11 (32.35%) who did not receive steroids, the mortality rate was 100% (p-value of 0.005). In the group of 11 surviving cases who received steroids, three (27.3%) did not develop complications, while eight (72.7%) recovered from paraquat poisoning-associated complications and were discharged (p-value of <0.001). Among the 12 patients who received Inj Dexamethasone, eight (72.7%) survived, whereas among the 10 patients who received Inj methylprednisolone, three (30%) survived.

Conclusion: Administering steroids in paraquat poisoning has shown associations with reduced mortality and complications. Inj dexamethasone exhibited better outcomes in patients with paraquat poisoning compared to Inj methylprednisolone. However, further studies with larger subject pools are necessary to validate these observations.

Acute Acquired Methemoglobinemia in Organic Bio Larvicide Poisoning: Fatal Yet Treatable

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Introduction: Methemoglobinemia poses a life-threatening risk characterized by the reduced oxygen-carrying capacity of circulating hemoglobin due to the conversion of some or all iron species from the ferrous state to the oxidized ferric state. Ferric iron, unable to efficiently bind and transport oxygen, leads to functional anemia. Methemoglobinemia can stem from congenital or acquired origins, with acquired cases being notably more prevalent. It arises from exposure to substances directly or indirectly causing oxidation of hemoglobin. Fatalities occur with levels surpassing 70%.

Case description: A 22-year-old male presented with severe headache, hematemesis, and multiple vomiting episodes, reportedly due to pesticide poisoning with TARGET 303, an organic bio larvicide, 12 hours before hospitalization. Examination revealed cyanosis and oxygen saturation measured 75% on room air, displaying the characteristic chocolate brown coloration upon blood draw. Supplemental oxygen failed to improve saturation, while other vital parameters remained unremarkable.

Further investigation through serial arterial blood gas (ABG) analyses revealed methemoglobinemia, with levels exceeding 50%. Treatment commenced with an injection of methylene blue and vitamin C, alongside other supportive measures. Significant improvement occurred within 10 days of treatment, leading to the patient's discharge.

Conclusion: Pesticide poisoning stands as the most prevalent type of poisoning in Indian adults, with an incidence of 63%. Methemoglobinemia, diagnosed clinically based on history and presenting symptoms, is treatable when identified early. Therefore, in pesticide poisonings, consideration of acute acquired methemoglobinemia as a differential diagnosis aids in reducing the associated morbidity and mortality through timely diagnosis and intervention.

Assessment of Severity of Organophosphorous Compound with Prognostic Significance of Creatine Phosphokinase Levels

Kalakuntla Varshini Rao

Introduction: Organophosphorus poisoning (OP poisoning) is a prevalent issue, particularly in developing countries like India. Erythrocyte cholinesterase activity, commonly used to aid clinical diagnosis and predict prognosis, is costly. Pseudo-cholinesterase, a cheaper alternative, is less reliable. Creatine phosphokinase (CPK) is an inexpensive investigation readily available in all laboratories.

Aims and objectives: This study aims to assess the role of creatine phosphokinase levels in supporting clinical diagnosis and predicting prognosis in acute OP compound poisoning.

Materials and methods: A prospective observational study involved 50 patients presenting within 6 hours of consuming OP compounds, meeting inclusion and exclusion criteria. Patients were categorized based on POP score into mild, moderate, and severe poisoning categories, noting initial CPK levels. Data was expressed in percentages, and statistical significance was assessed using the Chi-squared test.

Results: Among the 50 patients, 28 (56%) had mild, 16 (32%) had moderate, and six (12%) had severe poisoning. Initial CPK levels showed a positive correlation with POP scores. Four deaths occurred during the study, with one from moderate poisoning and three from severe poisoning cases.

Conclusion: Initial CPK levels demonstrated a correlation with the severity of OP compound poisoning and mortality.

To Study the Predictive Value of Elevated Amylase in Assessing Severity of Organophosphorus Poisoning

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Introduction: Organophosphorus poisoning accounts for 75% of poisonings in our country and stands as the second most common method of suicide after hanging. Its primary mechanism involves the inhibition of acetylcholinesterase (ACHE), which typically breaks down acetylcholine into acetate and choline. The accumulation of acetylcholine throughout the autonomic and somatic nervous systems leads to excessive stimulation of muscarinic and nicotinic receptors. Additionally, OP compounds elevate intraductal pressure and exocrine pancreatic flow, resulting in extravasation of pancreatic fluid. Consequently, patients exhibit elevated serum amylase levels.

Aims and objectives: To estimate serum amylase levels in acute organophosphorus compound poisoning.

To compare serum amylase levels in patients with organophosphorus compound poisoning and their association with clinical severity.

Materials and methods: In a cross-sectional analytical study, 62 patients admitted to the hospital with organophosphorus poisoning were included. Serum amylase levels were assessed upon admission and after 24 hours. These levels were correlated with clinical features of OP poisoning (miosis, altered sensorium, secretions, fasciculations, heart rate, hypotension, convulsions, and respiratory failure).

Results: Symptoms including bradycardia, fasciculations, altered sensorium, secretions, and respiratory failure displayed statistically significant increases in serum amylase levels. Serum amylase levels at presentation (mean: 154.61, SD: 121.51) were higher than those observed after 24 hours (mean: 129.27, SD: 92.34), with a statistically significant p-value.

Conclusion: Serum amylase levels were elevated at presentation and gradually reduced with proper treatment. Significant correlations existed between hyperamylasemia and severe manifestations of OP poisoning, including secretions, fasciculations, bradycardia, and respiratory failure. High serum amylase levels serve as robust predictors of clinical severity in OP poisoning, aiding in careful monitoring and aggressive management of severe cases. Evaluation of serum potassium levels as Prognostic Marker in Acute Organophosphorus Poisoning

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Introduction: Deliberate self-harm using pesticides, particularly OP compounds, is a global public health concern, claiming the lives of nearly 200,000 individuals annually, with a rising incidence. India reflects this alarming trend, facing an even more severe situation.

Aim: Early detection and correction of hypokalemia in patients affected by organophosphorus compound poisoning.

Objective: To explore hypokalemic features in organophosphorus poisoning cases and assess how early correction of hypokalemia reduces morbidity, and mortality, and enhances outcomes in OP poisoning patients.

Materials and methods: This case series comprises 30 patients aged between 20 and 50 years, presenting with a suspected history of organophosphorus compound poisoning and exhibiting symptoms of respiratory failure necessitating ventilator support.

Results: Severe profound foot-grade OP poisoning commonly presents with hypokalemia. Among hypokalemic OPC poisoning cases, 52.6% required ventilator support, compared to 27.3% among normokalemic OPC poisoning cases. Deaths were observed among hypokalemic OP poisoning cases but not among normokalemic patients.

Conclusion: The study highlights that hypokalemia significantly increases both morbidity and mortality in OP poisoning cases. Early hospitalization and correction of hypokalemia can potentially save lives in OPC poisoning.

QT Interval in the Initial Ecg of Organophosphorus Compound Poisoning Patients: Prognostic Significance

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Background: Organophosphorus compound (OPC) poisoning represents a critical medical emergency associated with substantial morbidity and mortality. Within the realm of cardiovascular complications, the prolongation of the QT interval on electrocardiograms (ECGs) might hold crucial prognostic implications. This study aimed to ascertain the prognostic significance of QT interval prolongation in patients diagnosed with OPC poisoning.

Materials and methods: This prospective study encompassed 76 patients admitted with a history of OPC poisoning at a tertiary care medical college hospital over a 14-month period. A 12-lead ECG was obtained before treatment, enabling measurement of the QT interval. Associations and correlations were examined using Chi-squared and Pearson's correlation tests, respectively.

Results: Among the 76 patients, 52 (68%) exhibited QT interval prolongation. A statistically significant association ($p < 0.05$) was identified between QT prolongation and extended ICU stays, increased ventilator usage, and elevated morbidity. Mortality rates were notably higher in the long QT group compared to the normal QT group ($p = 0.013$). Additionally, patients with prolonged QT intervals experienced longer hospitalizations compared to the other group ($p = 0.031$). Pearson's correlation demonstrated a strong positive relationship ($r = 0.65$, $p < 0.001$) between QT prolongation and adverse clinical outcomes in OPC poisoning cases.

Conclusion: Prolongation of the base QT interval in the initial ECG of OPC poisoning patients emerges as a significant prognostic indicator. Early identification and vigilant monitoring of QT interval prolongation could prove pivotal in clinical decision-making processes, potentially leading to improved patient outcomes.

A Study of Clinical Profile And Outcome of Patients of Acute Kidney Injury Due to Hemotoxic Snakebite

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Background: Snakebite is a significant public health problem, a medical emergency, and an occupational hazard, causing considerable morbidity and mortality worldwide, especially in the tropics and subtropics. Viper bites are more common than other poisonous snakebites in humans. The World Health Organization has estimated that there are approximately 125,000 deaths among 250,000 poisonous snake bites worldwide every year, of which India accounts for 10,000 deaths. Envenomation has multiple local and systemic complications. Acute kidney injury, being one of the common complications, causes significant mortality and morbidity. Its proper supportive management after the antivenom administration is of utmost importance for a good patient outcome.

Aim: To describe the clinical profile and outcome of snake bite-induced acute kidney injury.

Materials and methods: This was a prospective observational study conducted in the Department of General Medicine, Government Medical College Jammu, over a period of 1 year. The study included 100 patients with snake bite-induced acute kidney injury. Clinical history taking, physical examination, and laboratory evaluation such as complete blood count, renal function test, liver function tests, clotting time, coagulogram, arterial blood gas analysis, chest X-ray, and ultrasound abdomen were carried out. All patients received standard treatment as per protocol, including anti-snake venom. Patients received peritoneal or hemodialysis depending on the requirement.

Results: The male-to-female ratio was 1.2:1, with the most common age group between 20 and 60 years. Almost 75% of patients belonged to rural areas, and 25% to urban populations. The maximum cases were encountered between the months of July and September. Common clinical manifestations were local cellulitis (90%), oliguria (77%), edema (33.3%), hematuria (56%), altered sensorium (26.3%), and bleeding manifestations (22.8%). Common laboratory findings included hypoalbuminemia (64%), anemia (82%), leukocytosis (73%), thrombocytopenia (49%), coagulopathy (88%), metabolic acidosis (43%), hyperkalemia (23%), and hepatic dysfunction (40%). Complications observed were pneumonia/ARDS (10%), myocardial infarction (1%), GI bleeding (14%), seizure/encephalopathy (11%), and MODS (5%). 48% required hemodialysis, and 4% required peritoneal dialysis. Around 88% of patients recovered following treatment, and a 12% mortality rate was observed.

Conclusion: Snakebite-induced acute kidney injury (AKI) has a mortality rate of 12%. The factors associated with mortality were the presence of coagulopathy, anemia, metabolic acidosis, and uremia. Dialysis and supportive treatment appear to be the mainstay of therapy in cases complicated by renal failure.

Study of Acute Kidney Injury Due to Snake Bite Envenomation in Patients Admitted to a Tertiary Care Hospital, Mysuru

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Background: Snakebite is a common medical emergency and an occupational hazard, particularly prevalent in tropical India, where farming constitutes a major source of employment. Viper bites are more common than other poisonous snakebites. The World Health Organization (WHO) estimates approximately 125,000 deaths among 250,000 poisonous snake bites worldwide every year, with India accounting for 10,000 deaths. Acute kidney injury (AKI) is a significant consequence of snake bites, and proper supportive management following the administration of Anti-snake venom (ASV) is vital for a favorable outcome.

Objectives: To observe the clinical presentation of patients with snake bite-induced AKI, coagulation abnormalities, and the outcomes in patients experiencing snake bite-induced AKI.

Materials and methods: A total of 50 patients admitted to KR Hospital in Mysuru with snake bites and coagulation abnormalities were examined. History was gathered regarding snake type, bite site, time of the bite, indigenous treatments, and relevant symptoms.

Results: The study involved 50 patients with snake bites. In our investigation, males in the age group of 31–40 years were most affected (28%), with viper bites being the most common (46%). Disseminated intravascular coagulation (DIC) and intravascular hemolysis were prevalent. The most frequent bite site was the lower limb, with pain being the most common symptom. A total of 22 patients experienced AKI. All developed cellulitis, 15 (30%) experienced bleeding manifestations, and 30 (30%) required dialysis.

Conclusion: The study demonstrates that AKI resulting from snake bites is severe, with a significant proportion of patients requiring ASV administration and renal replacement therapy (RRT). Early administration of ASV and initiation of RRT appear to yield better outcomes.

Acute Oxalate Nephropathy Due to Bilimbi Poisoning: a Case Report

Sonu T

Acute kidney injury (AKI) can arise from various sources, including plant toxins, which stand as a significant contributor. Within this category, plant toxins serve as a notable cause of tropical acute kidney injury, finding application in therapeutic, cosmetic, and, at times, even in self-inflicted harm. *Averrhoa bilimbi*, commonly known as the bilimbi fruit, belongs to the Oxalidaceae family. It serves diverse purposes, being employed in the production of vinegar, wine, pickles, and certain Indian dishes. Its high oxalate content renders it a nephrotoxic agent. However, instances of acute oxalate nephropathy subsequent to the ingestion of A. Bilimbi remains infrequent, with only a few cases documented in India.

This case details an incident of acute oxalate nephropathy following the consumption of A. Bilimbi juice by a patient admitted to a private hospital in Ernakulam, Kerala.

Case description: A 42-year-old male presented at a private hospital in Ernakulam, Kerala, with a history of bilateral leg swelling, facial puffiness, abdominal pain, nausea, and vomiting over the preceding 3 days. He did not report oliguria, hematuria, or frothing of urine. Furthermore, there were no complaints of shortness of breath, hemoptysis, or abdominal distension. The patient had been taking Atorvastatin 10 mg for hypercholesterolemia and, besides being a carpenter, had been using NSAIDs for several weeks to manage low backache.

Upon examination, the patient remained conscious, oriented to time, place, and person, alert, and cooperative. Bilateral periorbital puffiness and bilateral pitting pedal edema were evident. His blood pressure measured 200/100 mm Hg, while the rest of the examination yielded normal results.

Laboratory investigations revealed a serum creatinine level of 8 mg/dL (normal range: 0.7–1.4 mg/dL) and a serum urea level of 180 mg/dL (normal range: 5–20 mg/dL), indicating severe renal failure. Other investigations fell within normal limits. An abdominal ultrasound displayed normal-sized kidneys without evidence of calculi or hydronephrosis, with normal corticomedullary differentiation. As a differential diagnosis, NSAID-induced nephropathy was considered.

The patient's blood pressure was managed, and a pulse dose of steroids was administered (considering NSAID-induced nephropathy). He underwent two sessions of hemodialysis, and a percutaneous kidney biopsy was performed, revealing calcium oxalate crystals (polarizable fractured crystals) within the tubular lumina and epithelial calcification in some tubules. The patient disclosed consuming 500 mL of homemade *Averrhoa bilimbi* juice 2 days prior.

His renal function normalized within five weeks. He was discharged after a 2-week admission and is currently under regular follow-up, having returned to his normal life.

Discussion: Acute oxalate nephropathy, resulting from calcium oxalate crystal deposition in renal tubules leading to acute kidney injury, remains a rare condition. Oxalate, an end-product of glyoxalate metabolism in the liver, is solely cleared by the kidneys. Secondary oxalosis can arise from excessive oxalate accumulation due to increased ingestion, production, or decreased excretion of oxalate. While primarily associated with ethylene glycol poisoning, other causes, such as the ingestion of high-oxalate foods like Averrhoa carambola (star fruit) juice and peanuts, have been reported. Overconsumption of oxalates can surpass renal excretory capacity, resulting in calcium oxalate crystal deposition in renal tubules and consequent renal injury.

Irumbanpuli (*Averrhoa bilimbi*), a local fruit in South India, commonly utilized in culinary and traditional medicinal practices, possesses high oxalic acid content. Instances of excessive fruit juice ingestion leading to calcium oxalate crystal deposition in renal tubules and subsequent acute renal failure have been recorded. Timely diagnosis of oxalate nephropathy is crucial, as it allows for interventions that can prevent further kidney damage.

Conclusion: While *Averrhoa bilimbi* is utilized as a dyslipidemia remedy, excessive consumption of its juice in concentrated form can precipitate acute renal failure. Hence, it's imperative to raise awareness about refraining from highly concentrated oxalate-containing fruits. Furthermore, this case underscores the importance of considering a history of bilimbi fruit consumption as a potential cause of acute oxalate nephropathy in individuals presenting with unexplained acute renal injury.

Serotonin Syndrome Masquerading as Lithium Toxicity

Soumi Chakraborty

Introduction: Serotonin syndrome arises from an excess of serotonergic agonism at receptors within the central and peripheral nervous systems, leading to a spectrum of symptoms ranging from mild to potentially life-threatening. Its manifestations encompass alterations in mental status, autonomic instability, and neuromuscular hyperactivity. Often, multiple drug regimens involving monoamine oxidase inhibitors (MAOIs), serotonin releasers, selective serotonin reuptake inhibitors (SSRIs), or serotonin-norepinephrine reuptake inhibitors (SNRIs) are implicated. Timely identification during its early stages can be pivotal in saving lives. Herein, we report the case of a 65-year-old man exhibiting a mild-to-moderate presentation subsequent to the use of psychotropic medications.

Case description: A 65-year-old man with a significant medical history encompassing obsessive-compulsive disorder (OCD) and manic-depressive disorder (MDD) presented to the emergency room with a sudden onset of tremulousness in his hands persisting for 2 weeks, accompanied by anxiety, palpitations, urinary incontinence, and urgency. He had been on SSRI—Sertraline 100 mg thrice daily, Trazodone 50 mg thrice daily, and Lithium 300 mg twice daily for the past 20 years, with no recent alterations in the drug regimen. Prior to admission, his treating psychiatrist ceased lithium suspecting lithium toxicity, although the serum lithium level was borderline at 1.1 mEq/L (normal range—0.6–1.2). Despite discontinuation, symptoms persisted and exacerbated over the subsequent 5 days, prompting admission.

Upon presentation, he displayed tachycardia (heart rate 120/minute) and a blood pressure of 160/90 mm Hg. Physical examination revealed restlessness, agitation, confusion, and limited orientation (AOx1). Coarse high-frequency tremors were evident in both hands, significantly impairing routine activities. Additionally, he experienced anxiety attacks marked by tachycardia and worsening tremors. Neurological examination highlighted the left plantar extensor, bilateral upper limb, left knee joint hyperreflexia, and inducible left ankle joint clonus. However, ocular clonus was absent. Laboratory investigations returned normal results, but clinical suspicion, as per Hunter's Criteria, supported the diagnosis of serotonin syndrome. SSRIs were discontinued, and lorazepam and propranolol were initiated alongside adequate hydration. Nevertheless, his tremors and panic attacks intensified.

Subsequently, cyproheptadine was administered at a loading dose of 12 mg followed by 2 mg every 2 hours. Pregabalin was also introduced. The subsequent day exhibited a significant reduction in tremors and anxiety attacks. The patient regained

orientation to person, place, and time (AOx3). Gradual diminishment of ankle clonus and improved bladder control were observed. Cyproheptadine was gradually tapered upon symptom resolution, and the patient was discharged on lorazepam, propranolol, and pregabalin.

Conclusion: Although considered rare, the burgeoning array of serotonergic drugs in clinical use is expected to elevate the incidence of serotonin syndrome. Increased awareness among clinicians about toxic symptoms, early recognition, and patient education regarding potential drug interactions can mitigate the occurrence of serotonin syndrome. Our case, initially suspected as lithium toxicity, aligns with a diagnosis of serotonin syndrome. Diagnosing serotonin toxicity demands a high index of clinical suspicion and can manifest despite no alterations in the dosage of existing serotonergic agents or initiation of new ones. Early diagnosis remains pivotal, as severe cases can be life-threatening.

A Case Series of *Cleistanthus Collinus* Poisoning: Fatal but Preventable

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Background: *Cleistanthus collinus* (known as Garari in Hindi, Vadisaku in Telugu, and Odu Vanthalai in Tamil) is a commonly found plant species. Historically used as an abortifacient in South India, it has increasingly become a choice for suicidal plant poisoning due to its widespread availability in various forms such as leaves, fruit, crushed plant parts, and decoctions made from its leaves. The toxic compounds found in this plant are diphyllin, cleistanthin A, and cleistanthin B.

Materials and methods: The study was conducted in the emergency/casualty department of PES Institute of Medical Sciences Hospital, Kuppam, among patients admitted with a suspected history of *Cleistanthus collinus* consumption from the start date to the end date. Following initial clinical assessment and stabilization, various investigations including arterial blood gas (ABG), urine routine, renal function test (RFT), liver function test (LFT), and serum electrolytes were performed upon admission and repeated daily. Persistent metabolic acidosis, fluctuating potassium levels, and ECG changes were observed.

Observations: Among the five cases of *Cleistanthus collinus* poisoning, all patients displayed metabolic acidosis and hypokalemia. Three patients recovered completely following symptomatic and supportive treatment administered over 5–7 days. Tragically, two patients succumbed to ventilatory failure.

Conclusion: Cleistanthus collinus poisoning is a frequently encountered emergency situation for which there exists no specific antidote. The severity of this poisoning is demonstrated by its potentially fatal outcome unless managed aggressively. Mortality rates are closely associated with the quantity ingested and the duration before seeking medical intervention. It is imperative to emphasize the necessity for research and the development of an antidote specific to *Cleistanthus collinus* poisoning.

A Retrospective Study of Acid-Base Disorders as Early Predictors of Mortality in Organophosphorus Poisoning in a Tertiary Care Center

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Introduction: Organophosphorus compounds serve as extensively used pesticides in agricultural practices, notably in countries like India. Due to their easy availability and accessibility, they are frequently employed as agents for suicidal poisoning. The present study aims to assess acid-base disorders identified in arterial blood gas (ABG) analysis as a potential predictor of mortality in cases of organophosphorus poisoning.

Materials and methods: This retrospective study was conducted in the Department of General Medicine at MIMS Hospital, Vizianagaram. Diagnosis relied on the alleged history of organophosphate (OP) compound consumption. Medical records of patients diagnosed with organophosphate poisoning between December 2022 and October 2023 were retrieved and subjected to thorough analysis using appropriate statistical methods.

Observation: Among the total of 58 patients who presented to the emergency department, 50 individuals met the inclusion criteria and were included in the study. Males comprised the majority (76%), with the highest number of cases (68%) observed in the age group of 21–40 years (mean age = 35.24). Eight patients (16%) succumbed during treatment. Among these cases, those displaying metabolic acidosis in ABG analysis exhibited the highest mean intensive care unit (ICU) stay and mortality rate (42%), surpassing respiratory acidosis (20%), followed by mixed acidosis (10%) and respiratory alkalosis (10%). There was no statistically significant association between age or gender and mortality. Furthermore, patients presenting with severe acidosis (pH ≤ 7.1), constituting 14% of cases, exhibited an increased mean ICU stay, demonstrating a statistically significant association ($p = 0.02$) with mortality.

Conclusion: This study underscores the potential of ABG analysis at the initial presentation to aid in prognostication for patients affected by organophosphorus poisoning. Early identification of acid-base imbalances could facilitate prompt initiation of alkali therapy and intensified management strategies, thereby potentially influencing patient outcomes.

Pulmonology

Invasive Mycosis: an Unusual Masquerade of Endobronchial Tumor

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Introduction: Pulmonary mucormycosis, a relatively uncommon fungal disease affecting the lungs, presents with diverse clinical manifestations, making diagnosis challenging. This case report highlights an instance of invasive mucormycosis manifesting as an endobronchial mass, mimicking a tumor.

Case description: A 65-year-old female, known for diabetes with uncontrolled blood sugar levels, presented with a persistent cough accompanied by expectoration over 2 months, along with a recent onset of low-grade fever, which had subsided with conservative treatment, and generalized weakness. Additionally, she had a medical history of hypothyroidism, hypertension, and coronary artery disease (CAD) post-coronary artery bypass grafting (CABG). On general examination, mild pallor, tachycardia, and tachypnea were noted. No other significant physical signs were observed. She was diagnosed with diabetic ketoacidosis, indicated by an anion gap of 16 and positive urine ketones.

Routine blood investigations revealed an elevated total leukocyte count of 15,730 cells/mm^3 and poorly controlled blood sugar levels, reflected in an HbA1C level of 12.8%. A chest X-ray exhibited consolidation in the right upper lobe. Further evaluation *via* high-resolution computed tomography (HRCT) of the chest revealed segmental consolidation in the right upper lobe with central cavitation and an endobronchial mass partially obstructing the right upper lobe bronchus. Suspecting tuberculosis, tests including sputum acid-fast bacilli (AFB) stain and mantoux test were performed, but the results were negative.

Bronchoscopy uncovered an endobronchial mass partially obstructing the right upper lobe anterior segment bronchus, raising suspicion of bronchogenic carcinoma. Biopsy of the mass revealed the presence of short, stout fungal hyphae suggestive of invasive mycosis, later confirmed through Grocott's methenamine silver (GMS) stain. Treatment commenced with Isavuconazole injections, resulting in clinical and radiological improvement. Subsequent chest X-ray demonstrated complete resolution of the consolidation.

Conclusion: In immunocompromised patients presenting with an endobronchial mass, considering invasive mycosis in the differential diagnosis is crucial to prevent misdiagnosis and ensure timely treatment. This case underscores the importance of recognizing pulmonary mucormycosis as a potential differential in such scenarios to prevent diagnostic delay.

Comparison of Scoring Systems for Predicting Mechanical Ventilation Requirement and Mortality in Acute Exacerbation of Chronic Obstructive Pulmonary Disease

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Introduction: Acute exacerbation of chronic obstructive pulmonary disease (AECOPD) stands as the fourth leading cause of mortality globally. The development of a scoring system capable of early detection, prognostication for mechanical ventilation necessity, and mortality prediction is essential for guiding appropriate therapeutic interventions. In this study, we assessed the efficacy of five distinct scoring systems—DECAF (dyspnea, eosinopenia < 500/uL, consolidation, acidemia pH < 7.3, and atrial fibrillation), BAP-65 (elevated BUN, altered mental status, pulse rate > 109 bpm, age > 65), the 2008 score, CAPS (COPD and asthma physiological score), and APACHE II.

Materials and methods: This observational study was conducted at JLN Emergency Hospital, Ajmer, encompassing 150 AECOPD patients presenting between October 2022 and September 2023. Each patient's scores using the five mentioned systems were calculated, and subsequent outcomes, such as the need for mechanical ventilation and hospital mortality, were meticulously recorded.

Observations: APACHE II emerged with the highest area under the receiver operating characteristic curve (AUROC) concerning both mortality prediction (AUROC = 0.78, $p < 0.001$) and the need for mechanical ventilation (AUROC = 0.76; $p < 0.001$). Following APACHE II, DECAF (AUROC = 0.74) and BAP-65 (AUROC = 0.72) exhibited notable accuracy in mortality prediction. The 2008 score demonstrated promising results for predicting the need for mechanical ventilation (AUROC = 0.75). Moreover, previous instances of mechanical ventilation were identified as the most significant individual predictor, along with cyanosis and paradoxical abdominal movement, for the necessity of mechanical ventilation.

Conclusion: The incorporation of these practical scoring systems into routine patient triage holds promise in directing early interventions, potentially leading to a reduction in mortality rates among AECOPD patients. The utilization of these scoring systems may aid healthcare practitioners in promptly identifying high-risk patients, facilitating more timely and targeted therapeutic strategies.

Clinical and Radiological Profile on Acute Pulmonary Embolism: Retrospective Study

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Background and objectives: Acute pulmonary embolism (PE) represents a rare and critical medical emergency characterized by the presence of blood clots within the pulmonary artery, impacting the circulatory system. Its estimated incidence is approximately 60–70 cases per 100,000 population and is often associated with deep vein thrombosis. Mortality rates reach around 30% when untreated, significantly reducing to 8% when managed promptly. This study aims to investigate various aspects—(1) clinical symptoms, (2) etiological analysis, (3) findings from echocardiography and CT pulmonary angiography, and (4) the frequency of different treatment modalities applied.

Methodologies: This retrospective study evaluated 22 patients with acute pulmonary embolism over a period of 18 months.

Results: Among the 22 patients studied, the mean age was 58.3 years, with the majority falling within the 50–69 age group. Females constituted a larger portion of the cohort (13 patients). The average BMI stood at 24.38. Hospital stays ranged from 4 to 22 days, averaging 8.7 days. The most common presentations were breathlessness (20 patients), followed by leg swelling (five patients), dry cough (four patients), palpitations, and fever (three patients each). Echocardiography revealed normal results in seven patients, mild pulmonary hypertension in four patients, and dilated right atrium/right ventricle with mild pulmonary hypertension in three patients. CT pulmonary angiography showcased emboli in both the right and left pulmonary arteries in 10 patients, while others displayed embolism in specific branches. The average Well's score was 4.4. Deep vein thrombosis, both symptomatic and asymptomatic, was the leading cause in 13 patients, predominantly affecting the left leg (nine patients). Other causes included malignancies, postsurgical complications, APLA syndrome, postpartum complications, chronic OCP use, and rare upper limb DVT. Diabetes mellitus was the most common risk factor. Treatment involved anticoagulants like rivaroxaban, apixaban, dabigatran etexilate, streptokinase lysis in selected cases, and IVC filter placement. Treatment success rates were 100%, with no reported mortality.

Conclusion: Acute pulmonary embolism, though rare, demands a high index of suspicion for prompt diagnosis, significantly impacting mortality and morbidity. The study highlighted a higher incidence among females and emphasized the necessity to consider both symptomatic and asymptomatic deep vein thrombosis in diagnosing PE. Normal echocardiographic findings don't rule out PE, as thrombi can be present in the pulmonary artery branches. The study also highlighted the importance of clinical consideration for PE even in cases with a Well's score suggesting a low probability of PE.

Chronic Hypersensitivity Pneumonitis with Pulmonary Tuberculosis: a Case Report

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Case report summary: A 53-year-old female presented with a 1-week history of cough with blackish mucoid expectoration, fever, chest pain for 5 days, and 2 days of breathlessness. The patient had a previous history of hypersensitivity pneumonitis treated with steroids 2 years prior and was also diagnosed with diabetes, undergoing treatment. Exposure to agricultural dust and domestic animals was reported.

Examination revealed a pulse rate of 86 bpm, blood pressure of 110/70, and an oxygen saturation of 70% at room air. Bilateral rhonchi and fine crepitations were detected in all lung fields.

Lab investigations, including HRCT, revealed consolidation against a background of fibrosis. Bronchoscopy with bronchoalveolar lavage (BAL) cytology suggested features consistent with hypersensitivity pneumonitis. Additionally, the BAL fluid tested positive for mycobacterium tuberculosis using the geneXpert test.

Conclusion: The presence of pulmonary tuberculosis in this case presents a complex scenario, potentially acting as a predisposing or associated factor alongside the underlying

history of hypersensitivity pneumonitis. The coexistence of these conditions warrants careful management and treatment strategies considering the overlapping nature of their symptoms and potential complications.

Bilateral Pancreaticopleural Fistula: a Rare Case Presentation

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Summary of case report: The case involves a patient diagnosed with chronic pancreatitis and a pancreatic duct calculus in the head region, who presented with breathlessness and chest pain following ERCP-induced Acute on Chronic Pancreatitis.

The patient developed a rare complication—bilateral pancreatic pleural fistula, an unusual condition occurring in a fraction of chronic pancreatitis cases. In this instance, exposure to pancreatic digestive enzymes led to inflammation, creating a tract from the pancreas into the anterior peritoneum, causing fluid accumulation that communicated with the pleural cavity, resulting in the formation of bilateral pancreatic pleural fistulae.

Laboratory investigations revealed elevated serum lipase and amylase levels. Initially, an intercostal drainage tube was placed, followed by the insertion of a 14F pigtail catheter into the right pleural cavity, draining fluid with significantly high amylase and lipase levels, along with altered glucose and protein levels.

A subsequent CECT chest scan showed moderate hydropneumothorax with lung collapse, a dilated main pancreatic duct with a pancreatic cyst, and a retrocrural and posterior mediastinal collection communicating with the pseudocyst. Additionally, thrombosis in the portal vein and its branches was noted.

Treatment involved intensive care management, including oxygen support, and administration of medications like Inj. Octreotide, antibiotics, anticoagulants, spirometry, chest physiotherapy, nebulizations, and pain management. Antibiotic escalation was performed. Over time, there was a decrease in total leukocyte count, and amylase and lipase levels showed a declining trend.

The patient was managed conservatively and followed up for a year and a half, during which they remained asymptomatic, and radiological closure of the fistula was achieved.

Conclusion: The presented case of bilateral pancreatic pleural fistula, an exceedingly rare condition, was managed conservatively, resulting in the patient's asymptomatic state and closure of the fistula as confirmed by radiological examinations during the follow-up period.

Study of Serum Albumin and C-Reactive Protein as Prognostic Biomarkers in Hospitalized Patients with Community-Acquired Pneumonia

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Introduction: An important issue in the management of community-acquired pneumonia (CAP) is the choice of treatment. Decisions about antimicrobial treatment are guided by factors such as spectrum of activity, pharmacokinetics, efficacy, safety profile, cost, and whether or not a specific pathogen is identified. The emergence of drug-resistant pathogens is becoming an important concern that has complicated the initial empirical management of CAP.

Biomarker tests can be considered as independent prognostic factors. Biomarkers together with clinical parameters can aid clinicians in assessing the severity of the illness and the need for the use of antibiotics. In the future, biological markers may become a part of routine diagnostic testing for CAP.

Materials and methods: A clinical prospective observational study was conducted on a minimum of 50 patients admitted to the hospital in the Department of General Medicine.

Study subjects: All clinically diagnosed pneumonia patients requiring hospitalization based on CURB65 (confusion, urea >7 mmol/L, respiratory rate ≥ 30/minute, blood pressure < 90 mm Hg systolic or ≤ 60 diastolic, age ≥ 65 years) scores were admitted.

Observations: Around 26% of 50 had severe hypoalbuminemia [<2.5 milligrams per deciliter (mg/dL)] on day 1 of admission. 58% of them had hypoalbuminemia (2.5–3.5 mg/dL) on day 1 of admission. When serum albumin levels were analyzed at the time of discharge, there was a significant change ($p = 0.025$) noted among patients. An increase in serum albumin levels was seen in all patients who had clinical signs of resolution. A total of 10 out of 50 patients had no change in the serum albumin levels during the course of illness. Among those patients who had their pneumonia unresolved, two of them had no change in serum albumin levels, one patient had a reduction in levels, and the other got discharged against advice.

C-reactive protein (CRP) is a nonspecific acute phase reactant and an inflammatory marker. The present study evaluates CRP as a prognostic marker in CAP. A quantitative analysis of CRP was done. The normal range taken for adults was <5.0 mg/L. The highest levels were noted in bacterial infections (>100 mg/L). An arbitrary range of <100, 101-200, >200 mg/l was taken for data analysis. on the day of admission/day 1: 38% of patients had serum CRP levels < 100.40% had levels between 101 and 200, and 22% of them had levels >200 mg/L. When serum levels were analyzed at the time of discharge, there was a significant decrease in the CRP levels ($p = 0.001$).

However, six out of 50 patients had their levels increased on the day of discharge. Among these patients, two of them had their pneumonia unresolved, three patients got discharged against advice, and one patient showed clinical signs of resolution even with high CRP levels. Levels of serum albumin correlated well with the need for ICU and mechanical ventilation.

Among the patients who required ICU, most of them (53.8%) had severe hypoalbuminemia (levels < 2.5) and 14.8% of patients with hypoalbuminemia (levels 2.5–3.5) required ICU care. ($p = 0.021$).

In patients with serum albumin > 3.5, the need for ICU was least (10%). Among five patients who required mechanical ventilation, (30.8%) all had severe hypoalbuminemia. Statistical analysis showed strong significance ($p = 0.004$). The correlation of albumin with outcome showed strong significance in statistical analysis ($p = 0.003$). Around 90% of patients with serum albumin levels >3.5 had their pneumonia resolved. Around 46% of patients with serum albumin <2.5 mg/dL had their pneumonia unresolving. Death was noticed in patients with severe hypoalbuminemia. The majority of patients who went against advice had serum albumin levels <2.5 mg/dL. However, most of the patients with serum albumin levels between 2.5 and 3.5 mg/dL had their pneumonia resolved.

Conclusion: Serum albumin levels and C-reactive protein can be used as prognostic biomarkers in community-acquired pneumonia, which is cost-effective and easily available.

Pulmonary Thromboembolism Rare Etiologies: Case Series

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Introduction: Acute pulmonary thromboembolism (PTE) is often fatal if not suspected and managed early. Young patients are more likely to be mismanaged as clinical suspicion of the disease in them is infrequent. Despite various diagnostic modalities, high clinical suspicion remains key for diagnosis. Understanding the cause of pulmonary thromboembolism is also necessary to make treatment decisions.

Materials and methods: Present a case series of five cases of PTE of various etiologies from inpatients of the Department of General Medicine, Mamata Medical College and General Hospital, Khammam.

Results: Hereditary deficiencies such as antithrombin, protein C, or protein S, as well as factor V Leiden or prothrombin G20210A mutations, have been well-established risk factors of thrombophilia of genetic origin. FVL thrombophilia is the most prevalent genetic mechanism for inherited hypercoagulable states.

Conclusion: Various causes contribute to PTE such as pregnancy, the postpartum period, postsurgery, oral contraceptive usage, etc. It poses a diagnostic challenge to diagnose PTE without a past history. Anticoagulation with low molecular weight heparin is started, followed by oral anticoagulants over a period of 3–6 months with dose modification based on PT and INR values.

Rare Causes Of Pulmonary Embolism: Case Series

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Introduction: Pulmonary embolism (PE) is a medical emergency requiring immediate attention due to its life-threatening potential. Here, we present a series of three cases diagnosed with pulmonary embolism, emphasizing the crucial significance of recognizing diverse etiologies. Timely and appropriate intervention plays a pivotal role in reducing significant morbidity and mortality associated with this condition.

	Case 1	*Case 2*	*Case 3*
Age/sex	22/M	28/M	47/M
History	Dyspnea, cough, and chest pain	Dyspnea, cough, chest pain and hemoptysis	Dyspnea and cough
Wells score	7.5	5.5	4.5
Electrocardiography	Sinus tachycardia S1Q3T3	Sinus tachycardia/ RBBB	Sinus tachycardia S1Q3T3
Echocardiography	RA, RV dilated McConnell's sign (+)	RA, RV dilated	D shaped LV RA, RV dilated
Deep vein thrombosis	Present	Absent	Absent
CT–pulmonary angiography	Left descending pulmonary artery and distal right pulmonary artery involved	Right inferior pulmonary segmental branch involved	Both right and left pulmonary artery extending up to segmental arteries affected
D-dimer	2.23 (<0.5 mcg FEU/mL)	1.9 (<0.5 mcg FEU/mL)	1.73 (<0.5 mcg FEU/ mL)
Homocysteine	11.7	44.91 (5.46-16.20 µmol/L)	7.2
Doppler	Acute left LL DVT from popliteal to femoral vein	Normal study	Normal study
Protein C	83	113	45.00 (70–130%)
Protein S	107	102	21.00 (60–140%)
Antithrombin	93	103	110 (80–120%)
ANA screening	Negative	Negative	Negative
APLA screening IgG anticardiolipin IgM anticardiolipin IgG Beta 2 Glycoprotein IgM Beta 2 Glycoprotein	135.3 GPL U/mL (<20) 11.5 MPL U/mL (<20) 79.7 IU/mL (<7) 1 IU/mL (<7)	Negative	Negative
Diagnosis	Primary antiphospholipid antibody syndrome	Hyperhomo-cysteinemia	Protein C and S deficiency

Discussion: Pulmonary embolism should be considered an important differential diagnosis of acute onset dyspnea. Pulmonary emboli can present with atypical symptoms. Scrupulous clinical assessment of the patient as well as investigation on admission can be lifesaving.

Comparative Study of Clinical Profile of Chronic Obstructive Pulmonary Disorder Patients with and without History of Pulmonary Tuberculosis

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Background and objective: The global burden of mortality and loss of disability-adjusted life years (DALY) due to chronic obstructive pulmonary disease (COPD) is on the rise. Irreversible airway obstruction is a consequential outcome of pulmonary tuberculosis, potentially contributing significantly to the development of COPD. While various studies in Western countries have assessed the association between tuberculosis and COPD, limited information exists within the Indian population. This study aimed to compare the severity of COPD in individuals with and without a history of tuberculosis and explore the clinical profile of COPD patients with this history.

Materials and methods: This case-control study encompassed 132 COPD patients diagnosed through pulmonary function tests (PFT) and initiated treatment involving medications such as short-acting β-agonists (SABA), short-acting muscarinic antagonists (SAMA), long-acting muscarinic antagonists (LAMA), long-acting β-agonists (LABA), inhaled corticosteroids (ICS), and methylxanthines. Patients meeting inclusion criteria, attending general medicine or chest medicine outpatient departments, or being admitted to the wards of a tertiary care hospital were included. Patients were categorized into cases (with a history of clinically, radiologically, or microbiologically proven pulmonary tuberculosis at least 6 months prior to COPD diagnosis) and controls (without any history of tuberculosis). Controls were matched with cases for Age, gender, smoking, and chulha (traditional stove) use. The analysis compared COPD severity, hospital admission rates, and medication frequency between cases and controls.

Results: A total of 66 cases and 66 controls meeting inclusion criteria were included. No statistically significant differences

were observed between cases and controls concerning age, sex, smoking, or exposure to chulha. However, 27 (40.91%) patients in the case group and 11 (16.67%) patients in the control group reported previous hospital admissions for similar ailments, indicating a statistically significant difference in previous hospital admissions among cases ($p = 0.002$). Cases exhibited 3.462 times more hospital admissions. No statistically significant difference was observed in the severity of COPD between cases and controls.

Conclusion: Clinically, COPD and posttuberculosis COPD demonstrate similar behavior. However, patients with posttuberculosis COPD experience significantly more admissions and longer hospital stays. Nevertheless, there is no disparity in the severity of COPD between both groups.

To Study The Effect of Streptokinase in Patients of Acute Pulmonary Embolism Admitted oo Tertiary Care Center

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Introduction: Acute pulmonary embolism is typically diagnosed via pulmonary angiography, identifying obstructive emboli or their outlines within vessels. Assessing clot burden on pulmonary computed tomography angiography (CTA) images might inform the duration of anticoagulant therapy. Knowledge about clot resolution rates is crucial, aiding in objective diagnosis when patients with pulmonary embolism (PE) symptoms reappear, potentially due to recurrent or residual PE. Unfortunately, the significance of reporting pulmonary thromboembolism isn't emphasized in Asian countries, particularly in India. This study aimed to evaluate streptokinase's efficacy in patients diagnosed with pulmonary thromboembolism by assessing clot burden resolution on follow-up CT-pulmonary angiography images.

Objectives: To assess the radiological resolution of acute pulmonary embolism on CT-pulmonary angiography following streptokinase therapy.

Materials and methods: A cross-sectional study evaluated 14 patients diagnosed with pulmonary embolism *via* CT-pulmonary angiography. Streptokinase therapy was administered, and its effect was assessed based on radiological resolution pre and posttherapy.

Observation: Overall, 10 patients exhibited complete resolution in the follow-up pulmonary CTA seven days post-streptokinase therapy. The mean percentage decline in Mastora score and qandli from baseline to follow-up CTPA was 74 and 76%, respectively.

Conclusion: The majority of patients (71%) demonstrated complete resolution of pulmonary embolism on CT angiography following streptokinase therapy within days. This highlights a significant reduction in clot burden.

Rheumatology

Thrombotic Thrombocytopenic Purpura as the First Presentation of Systemic Lupus Erythematosus: a Rare Case Scenario

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Introduction: Thrombotic thrombocytopenic purpura (TTP) is a form of microangiopathic hemolytic anemia classically characterized by the pentad of fever, thrombocytopenia, hemolytic anemia, renal, and neurologic dysfunction. TTP results from a congenital or acquired decrease in or absence of the von Willebrand factor cleaving protease ADAMTS 13, leading to microthrombi formation, and causing end-organ ischemia and damage. The central nervous system and kidneys are the most commonly affected organ systems. Timely diagnosis and management are crucial as untreated TTP carries a mortality rate of about 90%. Acquired TTP can stem from autoimmune diseases, malignancy, bone marrow transplants, drugs, pregnancy, and infections.

Systemic lupus erythematosus (SLE) is a multi-system autoimmune disease characterized by autoantibodies targeting nuclear antigens. SLE patients may present with fever, rashes, oral ulcers, hair loss, serous membrane exudates, nephritis, CNS, and hematological manifestations. TTP occurrence in SLE patients is exceptionally rare, with an incidence as low as 0.5%. The coexistence of these conditions poses a diagnostic challenge due to overlapping clinical features and laboratory abnormalities.

Materials and methods: A 17-year-old female patient presented to the central emergency with bleeding gums and nostril bleeding for 3–4 days, along with a history of headaches, fever, and 1–2 seizure episodes in the last week. She had a past history of hair loss, mild joint pain, and occasional oral ulcers. Physical examination revealed paleness, subconjunctival hemorrhage in the left eye, and widespread purpura and ecchymosis across the trunk and limbs. Laboratory reports indicated anemia, severe thrombocytopenia, normal counts, and peripheral blood smear (PBS) showing schistocytes. Raised retic count, S. LDH, and S. Bilirubin were noted. ANA was positive at a titer of 1:160. Although a serum ADAMTS13 test was planned but unavailable, the presence of clinical symptoms and schistocytes > 3% on PBS led to a presumptive diagnosis of TTP.

Considering the patient's history, symptoms, high ANA titer, and hematological abnormalities like thrombocytopenia, a diagnosis of systemic lupus erythematosus based on SLICC criteria was established after ruling out other causes of acquired TTP. Thus, the final diagnosis was thrombotic thrombocytopenic purpura, secondary to SLE. Treatment involved plasmapheresis, injection methylprednisolone, tab prednisolone, tab hydroxychloroquine, PRBCs, and FFPs.

Conclusion: The TTP as the initial manifestation of SLE is rare yet critical. Clinicians should maintain a heightened suspicion of this atypical presentation to facilitate early diagnosis and timely intervention, ultimately improving patient outcomes and quality of life.

Immunoglobulin G4-Related Disease with Multiorgan Involvement: Case Report

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It seems like the patient in question has a remarkably extensive case of Immunoglobulin G4-related disease (IgG4-RD), manifesting across multiple organs including the intestine, retroperitoneum, kidneys, lymph nodes, bilateral ovaries, adnexa, brain, and lungs. While various case reports and series on IgG4-RD with different organ involvement exist, this patient's simultaneous multi-organ presentation stands out. Diagnosis relied on the 2020 Revised comprehensive diagnostic criteria for IgG4-RD, considering clinical and radiological features, serological markers, and pathology.

Each affected organ exhibited findings consistent with IgG4-RD, reinforcing the likelihood of this diagnosis. The fulfillment of IgG4-RD comprehensive diagnostic criteria included diffuse or localized swelling, characteristic mass or nodule appearance, elevated serum IgG4 levels (>135 mg/dL), and histological evidence of dense lymphocyte and plasma cell infiltration with fibrosis, including storiform fibrosis.

Extensive involvement in IgG4-RD necessitates early diagnosis and treatment to prevent irreversible organ damage and to improve outcomes.

Fever of Unknown Origin Masquerading as Nonresolving Pneumonia with Exanthema, Posing Diagnostic Difficulty: a Case Report

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The presence of exanthema, coupled with a seemingly straightforward diagnosis like pneumonia, can distract clinicians from identifying the underlying cause of Fever of Unknown Origin (FUO). This distraction might delay the diagnosis and timely implementation of appropriate treatment measures.

We present the case of a 13-year-old girl who had recently undergone cholecystectomy and developed a fever along with exanthema on her face, limbs, and torso. Despite antibiotic treatment, her fever persisted for over 1 month. Upon arrival at the emergency room, she exhibited severe pallor, cough, shortness of breath, weakness, and psychiatric symptoms alongside the fever. Initial investigations and subsequent 48-hour assessments failed to yield a definitive diagnosis. Although she had pneumonia, which did not respond to standard antibiotic therapy, Coomb's positive hemolytic anemia and oral ulcers led the medical team to re-evaluate her clinical history and physical examination. Structured investigations following admission led to a diagnosis of systemic lupus erythematosus (SLE) based on the SLICC criteria. The diagnosis was further supported as symptoms and some physical signs notably improved after initiating corticosteroid therapy.

In conclusion, the application of SLICC criteria for diagnosing SLE holds significant importance in clinical practice, especially in cases where the ACR-EULAR criteria are not met (such as ANA-negative cases), but the clinical picture strongly suggests a diagnosis of SLE.

A Case of Primary Antiphospholipid Syndrome Presenting as Multiple Liver Infarcts

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Introduction: Ischemic damage to visceral organs can arise in up to 6% of patients diagnosed with antiphospholipid syndrome (APS). This report presents a case of primary APS that manifested as multiple liver infarcts in a 63-year-old woman, who also had a history of adrenal insufficiency and had been diagnosed with APS nearly 7–8 years earlier.

Case description: The patient presented with sudden upper abdominal pain lasting for 2 days. She had a similar episode 2 months prior, which was managed conservatively during a previous hospitalization. There were no associated fever or radiating symptoms. She had a known history of primary APS along with adrenal insufficiency, for which she was receiving daily hydrocortisone supplementation. Her anticoagulant treatment had been shifted from Warfarin to Dabigatran in February 2023 but was not continued after her previous discharge. Obstetric history was unavailable due to her unmarried status.

Upon admission, she was hemodynamically stable, mildly pale, and icteric. Abdominal examination revealed mild tenderness and borderline splenomegaly. Other general and systemic examinations were unremarkable.

Investigations revealed anemia (hemoglobin—7.2 gm%), low WBC count (3500/mm^3), and platelet count (1.3 Lakh/mm^3). Further analysis showed a positive direct Coomb's test, indicative of immune-mediated hemolytic anemia, along with erythroid hyperplasia in the bone marrow. Liver function tests (LFT) demonstrated hepatocellular pattern hyperbilirubinemia and moderately elevated transaminase levels. Imaging *via* CECT of the abdomen revealed multiple hypodense lesions in the liver, suggestive of hepatic infarcts, possibly accompanied by hepatic veno-occlusive disease, splenomegaly, and evidence of adrenal gland atrophy and calcifications, reflecting adrenal infarcts.

Treatment involved reinitiating Warfarin with a target INR achieved within 2 weeks. She was discharged on a regimen of Warfarin, steroid supplementation, levothyroxine, and other necessary medications.

Conclusion: Although infrequent, APS may manifest with ischemic damage to visceral organs due to arterial and/or venous thrombosis. Patients with unexplained sudden onset adrenal insufficiency should be evaluated for APS, in addition to those with a history of stroke, cognitive dysfunction at a young age, or recurrent pregnancy loss. Maintaining a target INR within 2.5–3.5 is crucial in preventing complications. Oral vitamin K antagonists should be preferred over novel oral anticoagulants as the primary choice of anticoagulant in primary APS patients.

Lupus Cerebritis in Systemic Lupus Erythematosus/Sjogren's Overlap Syndrome

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Introduction: Psychotic events are infrequent in systemic lupus erythematosus (SLE) and typically arise early in the disease course, generally within 1–3 years. In this case, lupus cerebritis developed against the backdrop of SLE/Sjogren's overlap syndrome.

Case description: An 18-year-old female presented with a sudden onset of altered sensorium, seizure-like episodes accompanied by involuntary defecation and micturition, along with dysphagia and dry mouth.

Upon examination, a butterfly rash over her face with nasolabial sparing was observed. No signs of meningeal irritation were present. Deep tendon reflexes were normal, sensory system intact, bilateral plantar reflex downward, and pupils of normal size and reactive to light.

The MRI brain with plain and contrast did not reveal any abnormalities. CSF analysis showed a cell count of 80/mm^3 predominantly lymphocytes, protein—90 mg/dL, sugar—44 mg/dL, and ADA—7.8 U/L. Routine blood reports were within normal limits, and viral markers for HIV, HCV, and HBsAg were negative.

Further investigations showed positive ANA (IFA) Hep 2—nuclear (2+), speckled (Ac—2,4,5), and a strong positive result in the ENA profile for Anti U1 RNP/sm, Anti sm, SSA, Ro 52, SSB /La, Rib P protein.

Diagnosis: A diagnosis of SLE/Sjogren's overlap syndrome with lupus cerebritis was established, and the patient was initiated on IV glucocorticoids. Improvement was noted within 4 days, and the patient was discharged on HCQ and oral glucocorticoids.

Conclusion: This case highlights that acute psychotic symptoms and seizures can be the primary presenting complaints in some SLE patients. A thorough evaluation is crucial to exclude drug-induced, infectious, metabolic, malignant, or other causes. Early identification and appropriate management are vital in these cases.

A Study on the Extraarticular Manifestations of Rheumatoid Arthritis

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Introduction: Rheumatoid arthritis stands as a prevalent systemic inflammatory condition, often accompanied by extraarticular manifestations that broaden the spectrum of the disease. These manifestations encompass a wide array, affecting major bodily systems such as cardiovascular, respiratory, neurological, and hematological systems.

Numerous studies have documented a diverse range of extraarticular features associated with rheumatoid arthritis. However, the reported types of these manifestations exhibit considerable variation. The awareness and identification of these additional manifestations play a pivotal role in managing and predicting the prognosis of patients with rheumatoid arthritis.

Materials and methods: This descriptive study focuses on the extraarticular manifestations observed in 52 rheumatoid arthritis cases, spanning both outpatient visits and admissions to the medical ward of Chalmeda Anandrao Medical College from June 2022 to 2023. Retrospective evaluations of hospital records were conducted for patients previously diagnosed with rheumatoid arthritis. Comprehensive medical history, physical examinations, complete blood counts, urine analysis, and blood biochemistry were performed on all patients. Further investigations were undertaken to confirm diagnoses.

Observations: Out of the 52 rheumatoid arthritis cases, 16 exhibited extraarticular manifestations. The most frequently observed manifestation was anemia of chronic disease. Additionally, manifestations included cardiac abnormalities such as pericardial effusion, pulmonary manifestations like interstitial pulmonary fibrosis, ocular manifestations such as scleritis, dermatological manifestations exemplified by rheumatoid nodules, and entrapment neuropathy.

Conclusion: Rheumatoid arthritis, being a systemic disease, often leads to a diverse range of extraarticular manifestations. Patients exhibiting persistent positivity for rheumatoid factor and anti-CCP, along with elevated ESR and CRP despite treatment, are more prone to developing these manifestations. The presence of extraarticular manifestations significantly contributes to the morbidity and mortality associated with rheumatoid arthritis. Timely recognition of these manifestations holds promise for better outcomes in managing rheumatoid arthritis.

Evan's Syndrome: a Rare Hematological Presentation in a Patient with Newly Diagnosed Primary Sjogren Syndrome

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Introduction: Anemia in primary Sjogren's syndrome, an autoimmune disorder, typically manifests as "anemia of chronic disease," often of mild severity. The occurrence of autoimmune hemolytic anemia (AIHA) as the primary presentation of Sjogren's syndrome is exceedingly rare. Moreover, the concurrent presentation of AIHA along with thrombocytopenia, termed Evans syndrome, is an uncommon occurrence.

Evans syndrome is an infrequent autoimmune condition characterized by cytopenias, commonly manifesting as warm autoimmune hemolytic anemia (AIHA) immune thrombocytopenia purpura (ITP), and occasionally immune neutropenia.

Case description: A 46-year-old female presented with complaints of generalized weakness, and easy fatigability persisting for 2 months. She reported left hypochondriac pain, dryness of mouth for 20 days, a feeling of grittiness in her eyes for the same duration, and dyspnea on exertion for the last 10 days. The patient received a blood transfusion of four units of RCC 15 days prior to presentation.

No prior history of jaundice, fever, hypertension, diabetes, tuberculosis, or cardiac comorbidities was reported. There was no history of prior bleeding manifestations. On examination, the patient was vitally stable with evident pallor and jaundice. A raised jugular venous pressure (JVP) and moderate splenomegaly were noted. The rest of the systemic examination revealed no significant abnormalities.

On investigation,

Hb	3.4–9.8 mg/dL
Platelets	16000–89000/mm^3
TIC	7900/cumm
Reticcount	3.1%
RFT	Normal
Total bilirubin/indirect Bilirubin	6.06/4.67 mg/dL
HBSAG, HCV, and HIV	Nonreactive
CRP	Positive
IRON PROFILE	Normal
S. B_{12}	750 pg/mL
S electrolytes	Normal
Dengue, malaria	Negative
LDH	1276[H]
S. COMPLEMENT C_3 LEVEL	0.3(low)
USGWA	Moderate splenomegaly
USG chest	Clear
Schirmers test	**B/L eyes positive (severe dry eye)**
DCT	Positive 4^+
ICT	Negative
ANA by IFA	2^+
ANA PROFILE	Ssa/RO60 ab-96{h} Ssb/Ab-93{h}
Investigation	Results
IPF	17.9 {H}
S. haptoglobin	**0.4 low**
Cryoglobolulin test	Negative
Bone marrow Aspiration	Erythroid hyperplasia with evidence of hemolysis
LIP biopsy	Lymphocytic sialadenitis with foci score >1/4 mm^2

The patient underwent both lip biopsy and bone marrow biopsy, excluding secondary causes of Sjogren's syndrome. The final diagnosis was established as primary Sjogren syndrome, accompanied by autoimmune hemolytic anemia and immune thrombocytopenia purpura (ITP).

Treatment primarily involved symptomatic and supportive measures, including the transfusion of 3 units of RCC. The patient exhibited a robust response to high-dose intravenous methylprednisolone (500 mg for 3 days), followed by oral prednisolone at a dosage of 1.5 mg/kg/day. With this treatment regimen, the patient showed remarkable improvement and was discharged from the hospital on the 10th day, with a persisting hemoglobin level of 10.5 gm/dL and a platelet count of 87,000/mm^3.

Discussion: Evans syndrome poses challenges in treatment compared to individual immune cytopenias and often presents a highly relapsing-remitting course with potentially severe complications.

In the acute setting, the first-line therapy involves corticosteroids and IVIG, supplemented by blood product support when necessary. Second-line therapy options include single-agent rituximab, cyclosporine, or mycophenolate mofetil (MMF).

In more severe cases, combination immunosuppressants are often needed. Although splenectomy may yield short-term responses, it can potentially decrease relapse frequency and allow a reduction in immunosuppressive agents. However, its efficacy varies among individuals.

Primary Sjogren's Syndrome: a Camouflage

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Introduction: Connective tissue diseases (CTDs) exhibit a multitude of presentations, among which Sjogren's syndrome consistently presents surprises with its diverse atypical manifestations. Around 50% of Sjogren's syndrome patients can develop extra glandular manifestations, with fatigue being the most common. Neurological manifestations, while rare, do occur. Presented here is a case of Sjogren's syndrome mimicking Guillain–Barre syndrome.

Case summary: A 51-year-old female with a medical history of type 2 diabetes mellitus, systemic hypertension, and hypothyroidism presented with a 2-week history of fever and painful swelling in the submandibular region. Over the subsequent week, she experienced weakness in both upper and lower limbs accompanied by tingling and numbness in the bilateral upper limbs extending up to the elbow joint and bilateral lower limbs up to the knees. Within the following 2 days, she developed walking difficulties. Physical examination revealed swelling in the submandibular region, painful nonpitting edema in both upper and lower limbs, and hyperpigmented reddish-brown rashes on the palms, nontender in nature. A neurological examination indicated proximal and distal weakness in all limbs, along with absent deep tendon reflexes. Laboratory tests revealed an elevated total leukocyte count, thrombocytosis, and increased CRP.

Despite initial broad-spectrum IV antibiotics for persisting fever, negative blood cultures, and negative procalcitonin after 48 hours, connective tissue disorder evaluation was pursued. The ANA profile showed positivity for anti-Ro 52 and anti-SS-A. Schirmer's test indicated severe bilateral dryness of the eyes. Nerve conduction studies revealed demyelinating motor and sensory axonal neuropathy. The diagnosis was confirmed as Sjogren's syndrome with ocular Sicca, parotidomegaly, ANA positivity, and quadriparesis. Due to severe neurological involvement, treatment commenced with IVIg and high-dose steroids following EULAR recommendations. The patient gradually showed improvement in fever and muscle weakness. Additionally, a monthly dose of cyclophosphamide was initiated.

Conclusion: This case underscores the significance of considering Sjogren's syndrome as a potential differential diagnosis in patients presenting with severe peripheral neuropathy resulting in quadriparesis. Exploring an autoimmune etiology in cases of polyneuropathy is essential for proper diagnosis and timely intervention.

Henoch Schonlein Purpura Presenting as Rpgn in an Adult Female

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Introduction: Henoch–Schönlein purpura is a rare small vessel vasculitis characterized by the deposition of IgA immune complexes. It primarily affects young males under 20 years of age, with a prevalence of four in 100,000 in adults.

Case description: A 42-year-old female presented with complaints of shortness of breath, decreased urine output, and bilateral pitting pedal edema over 2 days. She had a history of recurrent gross hematuria for the past year. The patient also had reddish-purple elevated rashes on the extensor aspect of her bilateral lower limbs, initially diagnosed as an allergic condition at another hospital.

Upon examination, nonblanching palpable purpuras were observed. Her urine output was measured at 400 mL in 24 hours. Blood urea and creatinine levels were 126 and 3.8, respectively. Urine examination revealed 3+ albuminuria with 40–50 RBCs per high power field, 60% of which were dysmorphic, along with active sediments. Tests for ANA profile, cANCA, and pANCA were negative. Ultrasonography showed normal bilateral kidney morphology. A kidney biopsy was performed.

The patient was initiated on intravenous methylprednisolone (1g) for 3 days, followed by oral prednisolone (60 mg OD). Gradually, urine output improved, and edema and rashes subsided, allowing the patient to be discharged. Oral prednisolone was tapered off over 3 months. The patient is currently doing well and is regularly followed up in the outpatient department.

The kidney biopsy revealed increased mesangial matrix with IgA deposits in immunofluorescence, indicating

Conclusion: Henoch–Schönlein purpura primarily affects children with a male preponderance. However, the case of this 42-year-old female presents adult-onset Henoch–Schönlein purpura with renal involvement, a rarity. Adult-onset cases with renal involvement often have a poor prognosis, with a high risk of progression to chronic kidney disease (CKD). Due to the lack of established treatment guidelines, early identification of the disease and conservative management with close follow-up remain crucial in managing this condition.

Takayasu Arteritis in a Patient of Rheumatoid Arthritis

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Introduction: Takayasu's arteritis (TA) is a rare inflammatory and stenotic disease affecting medium and large-sized arteries, primarily the aortic arch and its branches. It has a higher prevalence in adolescent girls and young women, with an annual incidence rate of approximately 1.2–2.6 cases per million.

Case description: A 60-year-old male with a known history of rheumatoid arthritis (RA) and ischemic heart disease for 5 years, who had been noncompliant with medications, presented with syncopal attacks over 2 months, and had recent onset of breathlessness for 1 week. Physical examination revealed the absence of radial and brachial artery pulsations on the right side, with notable blood pressure differences between arms (100/60 mm Hg in the left arm and 80/60 mm Hg in the right arm). Bruits were audible over the right carotid, subclavian, and abdominal aorta. Bilateral lower limb pitting edema (grade III) was present, along with respiratory findings such as rhonchi and crepitations bilaterally. Other systemic examinations were unremarkable.

A provisional diagnosis of volume overload status with a possibility of TA was considered. The patient was started on diuretics, and routine investigations along with CT aortography were advised.

Computed tomography aortography findings: The CT aortography showed smooth mural wall thickening in various arteries, including the right brachiocephalic, carotid, subclavian, ascending arch, abdominal aorta, and superior mesenteric artery, extending into the common iliac arteries. These findings were suggestive of type V TA. Additionally, a

high-resolution CT scan of the thorax revealed rheumatoid arthritis-associated interstitial lung disease.

Discussion and conclusion: Takayasu arteritis (TA) is an uncommon rheumatic disease that might develop as a complication of chronic autoimmune inflammatory conditions like rheumatoid arthritis. This case emphasizes the importance of monitoring RA patients with extraarticular manifestations for the potential development of occlusive arterial involvement such as TA. It highlights the need for proper patient and caregiver counseling and emphasizes the significance of prompt and effective management of rheumatoid arthritis to prevent life-threatening complications like rheumatoid vasculitis.

From the Masses to the Lenses: a Case Report

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Introduction: Immunoglobulin G4-related disease (IgG4-RD) is a novel, relatively enigmatic autoimmune condition characterized by chronic infiltration, atopic features, and vasculitic manifestations. The rarity and diverse clinical presentations make diagnosing this condition challenging.

A 40-year-old male from Mali, with a history of epilepsy, presented with sub-acute progressive abdominal pain that radiated to the back. Ten days later, he experienced an acute onset of fever with chills and rigors. His review of systems revealed significant weight loss and obstructive urinary symptoms. Upon admission, his pain score was 8 out of 10. Vital signs were normal, and abdominal examination showed diffuse tenderness without peritoneal signs or distention; bowel sounds were normal. Initial investigations indicated markedly elevated inflammatory markers and multifactorial anemia, while other parameters were within normal limits.

To assess the abdominal pain further, a contrast-enhanced computed tomography (CECT) of the abdomen and pelvis revealed multiple soft tissue masses surrounding the aorta, inferior vena cava (IVC), and left ureter. Given the multiple soft tissue lesions, a CT-guided biopsy was performed. Samples were sent for mycobacterial studies, immunohistochemistry, and cytology. However, the pathology department deemed the current specimen inadequate, recommending a surgical biopsy. A whole-body positron emission tomography (PET) scan showed no lymphadenopathy or vasculitis. Despite this, due to the presence of multiple soft tissue masses, a tissue diagnosis was deemed crucial in identifying this elusive disease.

Consequently, an exploratory laparotomy was performed under general anesthesia. The biopsied mass and nearby lymph nodes were sent for histopathological analysis and immunohistochemistry. The histopathological analysis revealed extensive fibrosis with a focal storiform pattern. Immunohistochemistry displayed numerous CD 138 positive plasma cells, with an IgG4 count of 105 and an IgG4 to IgG ratio of 0.4. The corresponding plasma value was 88.6. Based on the latest criteria, the final diagnosis was deemed to be probable IgG4-RD.

The patient received treatment involving analgesia, steroids, and other supportive measures. Steroids were administered in pulses, followed by a gradual taper based on clinical response. During follow-up, the patient responded positively to therapy, experiencing no further abdominal pain.

Conclusion: This case underscores the varied manifestations of this rare and emerging autoimmune disorder. It may also aid in fostering tolerance for atypical presentations in clinical medicine.

Study of Comorbidities and Extraarticular Manifestations in Patients of Rheumatoid Arthritis and their Prevalence with Seropositivity

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Introduction: Rheumatoid arthritis (RA) patients face an elevated risk of developing extraarticular manifestations (EAM) affecting the integumentary, hematological, neurological, and cardiopulmonary systems, contributing to heightened morbidity and mortality rates. This study investigates the prevalence of comorbidities in RA, specifically examining their occurrence concerning rheumatoid factor (RF) and anticyclic citrullinated peptide (anti-CCP) positivity. Additionally, it explores EAM in patients with positive serology compared to those with negative serology and their correlation with disease severity assessed *via* disease activity score 28 based on erythrocyte sedimentation rate (DAS 28-ESR) scores.

Materials and methods: A retrospective analysis evaluated 217 RA patients within a 2-year span at a tertiary care hospital. Classification was based on the 2010 American College of Rheumatology/European League Against Rheumatism (ACR/EULAR) criteria. DAS 28-ESR scores were used for joint assessment and calculation, and patient records documenting comorbidity histories were reviewed.

Observations: Among the 217 patients, the average age was 54 years, with 84.1% testing positive for serology, predominantly among females. Prevalent comorbidities included vitamin D deficiency (51.2%), hypertension (35%), hypothyroidism (31.4%), diabetes mellitus (24.7%), osteoarthritis (16.1%), and osteoporosis (10.6%). Notable extraarticular manifestations encompassed anemia of chronic disease (50.7%), keratoconjunctivitis sicca (9.2%), interstitial lung disease (7%), vasculitis (5.1%), and rheumatoid nodules (0.4%). Seropositive individuals exhibited higher rates of comorbidities and EAM compared to their seronegative counterparts. Both RF and anti-CCP positivity correlated with increased rates of all comorbidities, surpassing single seropositivity. Elevated prevalence was observed in cases of anemia of chronic disease, Sjogren's syndrome, rheumatoid nodules, interstitial lung disease, and vasculitis among these patients. Evaluation using DAS 28-ESR revealed that patients with a greater number of comorbidities and EAM showed heightened disease activity and lower probabilities of achieving remission.

Conclusion: A notable proportion of RA patients experienced EAM, significantly influencing their disease prognosis. Consequently, early identification and prompt treatment are pivotal in mitigating mortality risks.

Neutrophil to Lymphocyte Ratio as a Predictor of Severity of Inflammation in Rheumatoid Arthritis

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Introduction: Rheumatoid arthritis (RA) stands as an inflammatory autoimmune condition characterized by systemic involvement and an unknown etiology. The neutrophil-to-lymphocyte ratio (NLR), recognized as a sensitive inflammation marker, holds the potential for predicting inflammation severity in RA.

Material and methods: This prospective analytical study enrolled 29 (n = 29) patients diagnosed with rheumatoid arthritis, meeting the ACR/EULAR 2010 criteria, aged ≥ 18 years, and attending the Department of Medicine and Rheumatology Clinic at Kalinga Institute of Medical Sciences, Bhubaneswar over 3 months. NLR was correlated with markers of inflammation severity, assessed through DAS 28 score, using linear regression.

Results: Among the 29 patients, the male-to-female ratio was 1:4.5, with a mean age of 52.9 ± 11.076. The predominant age group was 41–60 years. Most patients fell into the moderate and high disease activity categories according to the DAS-28 (ESR) score. The mean neutrophil counts were 57.33, 76.33, 86.0, and mean lymphocyte counts were 28.5, 20.1, 11.1, with mean NLR at 2.434, 4.04, 5.4 in the low, moderate, and high disease activity groups, respectively. The mean N: L ratio was 5.73 ± 4.05, and the mean DAS-28 (ESR) score was 3.93 ± 1.23. A strong positive correlation between NLR and DAS-28 (ESR) was evident, with an AUC of 0.92 (confidence interval—0.81–1.00; p = 0.008), a sensitivity of 77.8, and a specificity of 95.0%.

Conclusion: The NLR shows promise as a surrogate marker for disease activity in rheumatoid arthritis, supplementing DAS-28 scoring and other established scales. Its accessibility and simplicity position NLR as a potentially valuable addition to validated scoring systems, enhancing the sensitivity and specificity of clinical assessments for disease activity.

M. VISHWANATHAN POSTER PRESENTATION: APICON 2024

Cardiology

1. **Rare Cases of Ebstein Anomaly**
   Anjali Hiremath, Sfurti Jadhav, Anita Jadhav, M V Bansode
   Rajarshi Chhatrapati Shahu Maharaj Government Medical College and CPR Hospital, Kolhapur, Maharashtra, India
2. **Machine Learning in Medical Field**
   Captain Sambhu Dutta
3. **Echocardiographic Assessment in Patients of Thyroid Dysfunction**
   Satya Sai Asrith Bhavanam
   Gayatri Vidyaparishad Institute of Health Care and Medical Technology, Dr YSR University of Health Sciences, Visakhapatnam, Andhra Pradesh, India
4. **Reversible Pulmonary Hypertension with Unclear Etiology in Toddy Drinkers of Nizamabad District in Telangana**
   L Sai Pavan, B Srinivas, J Tirupathi Rao Saraswati, D Rajesh
   Government Medical College, Nizamabad, Telangana, India
5. **Calcium-125 in Heart Failure: Surrogate of Congestion**
   Amit Jajodia, Lalatendu Mohanty, Subhasis Mishra, Rajendra Prasad Bangam Rao
   Kalinga Institute of Medical Sciences (KIMS), Kalinga Institute of Industrial Technology (KIIT) (Deemed to be University), Bhubaneswar, Odisha, India
6. **Study of Significance of Interleukin-6 in Patients with Heart Failure in a Tertiary Care Center in Bengaluru**
   Sreya Yarlagadda, J A John, V VP Rao
   MS Ramaiah Medical College, Bengaluru, Karnataka, India
7. **A Study of Clinical Profile in Acute Decompensated Heart Failure Patients and to Identify Precipitating Risk Factors and Comorbidities**
   Guramol Singh Dhillon, Rajshree, RP Ram
   Jaslok Hospital and Research Center, Mumbai, Maharashtra, India
8. **A Case of Capecitabine-induced Cardiomyopathy**
   Inturi Anuja, Ravi Kaladhar Reddy, Saifulla Siva Prasad
   Viswabharati Medical College, Kurnool, Andhra Pradesh, India
9. **A Rare Case of Arrhythmogenic Right Ventricular Cardiomyopathy with Congenital Heart Disease**
   Harika K, Prabhavathi, Satish S, Madhuvan HS, Mithun N Kagalkar
   Sri Jayadeva Institute of Cardiovascular Sciences & Research; Akash Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, India
10. **ST Segment Elevation is Not Always Myocardial Infarction**
    Vigneshvarprashanth Umapathy, Joseph Theodore, G Dominic Rodriguez
    Kauvery Hospital, Trichy, Tamil Nadu, India
11. **Clinico-etiological Profiling of Patients of Atrial Fibrillation Visiting Medical College and Hospital in Bihar**
    Saif Iqbal, Abhilasha Singh, Abhishek Kamendu, Arun Singh, Jadoun, Manish Kumar Mishra
    Narayan Medical College and Hospital, Sasaram, Bihar, India
12. **A Study on Role of Serum Magnesium Levels in Acute Myocardial Infarction**
    G S Ramya, Rajashekar
    Raichur Institute of Medical Sciences, Raichur, Karnataka, India
13. **Echocardiographic Assessment of Right Ventricular Function in Inferior Wall Myocardial Infarction**
    Yedla Srinivas Reddy, Sanjay HK
    Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar, Telangana, India
14. **Recurrent Cerebrovascular Events Secondary to Ebstein's Anomaly in an Adult**
    Mehreen Iqbal, T R Raghu
    Rajarajeswari Medical College and Hospital, Bengaluru, Karnataka, India
15. **A Case of Isolated Left Ventricular Noncompaction**
    Polavarapu Raghuram
    MediCiti Institute of Medical Sciences, Hyderabad, Telangana, India
16. **Wellens' Syndrome: A Life-saving Diagnosis**
    Priya Khaire, Mahmood Ul Haq, Taha Khalid
    Bhaskar Medical College and Hospital, Ranga Reddy, Telangana, India
17. **A Rare Case of Tetralogy of Fallot with Absent Pulmonary Valve Syndrome**
    Neha Kumari
    Patna Medical College and Hospital, Patna, Bihar, India
18. **Estimation and Correlation of Clinical Significance of Lipoprotein (A) as a Risk Factor of Atherosclerotic Cardiovascular Disease'**
    Yashoda Tushar Maladkar, VA Kothiwale
    Jawaharlal Nehru Medical College, KLE Academy of Higher Education and Research (Deemed to be University), Belagavi, Karnataka, India
19. **The Study on Relationship between Serum Uric Acid and Severity of Left Ventricular Dysfunction**
    Buchipalli Gowthami Priya, Sanjay Kalbande
    Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar, Telangana, India
20. **Cholecystalgia: An Atypical Presentation of Congestive Cardiac Failure**
    Gandikota Sai Sravya
    Mallareddy Medical College for Women, Hyderabad, Telangana, India
21. **Study on Association between Platelet Volume Indices in ST Segment Elevation Myocardial Infarction**
    Mary Priya Varghese
22. **Hyponatremia as a Prognostic Indicator in Acute Coronary Syndrome**
    Akash B J
    Raichur Institute of Medical Sciences, Raichur, Karnataka, India
23. **A Study on the Prevalence of Iron Deficiency in Heart Failure Reduced Ejection Fraction Patients with Acute or Chronic Heart Failure Admitted in Government Tertiary Care Hospital**
    Senthil Kumar D, A Shaik Sulaiman, M Pradeep Kumar, RBS Manian, SV Sangeetha
    Government Royapettah Hospital; Government Kilpauk Medical College, Chennai, Tamil Nadu, India
24. **Association of Elevated Serum Ferritin Levels with the Risk of Acute Myocardial Infarction**
    Rakesh Tank, Priyanka Tank, Abhishek Singh, AA Singh, VS Tanwar
    Shaheed Hasan Khan Mewati Government Medical College, Nuh, Haryana, India
25. **A Study on Mechanical Complications and Its Outcome in Patients with Acute ST Elevation Myocardial Infarction**
    Anjali Mukundan, Vithal Rao, Meraj S
    Al-Ameen Medical College, Vijayapur, Karnataka, India
26. **Study of Left Ventricular Diastolic Dysfunction as an Early Predictor of Cardiovascular Disease in Diabetes Mellitus Patients**
    Prajnyaparamita Mohanty, MK Mohapatra
    Veer Surendra Sai Institute of Medical Sciences and Research, Sambalpur, Odisha, India
27. **Influence of the Metabolic Syndrome on Clinical Profile and Outcome in Patients with Acute ST Elevation Myocardial Infarction**
    Sneha Kandula, J Venkat Siva Rao, Krishna Prasad
    Mamata Medical College, Khammam, Telangana, India
28. **Clinical and Etiological Profile of Pericardial Effusion: A Cross-sectional Descriptive Study**
    Biswajit Hait, Naresh Kumar, Dhiraj Wasnik, Vimal Mehta, Rashmi Mishra
    Maulana Azad Medical College, Delhi, India
29. **A Rare Case of Ventricular Septal Defect with Eisenmenger Syndrome with Double-chambered Right Ventricle and Left Ventricular Hypertrophy**
    Archana Kumari
    Patna Medical College and Hospital, Patna, Bihar, India
30. **A Real-world, Cross-sectional Study on Adoption of Guideline-directed Medical Therapies for the Management of Cardiovascular Diseases**
    Nitin Zalte, J Christopher, Chetan Shah, F Francis, N Antony
    Department of Medical Affairs, Cipla Limited, Mumbai, Maharashtra, India
31. **Study of Association of Microalbuminuria with Myocardial Infarction in Nondiabetic and Nonhypertensive Patients**
    Rithika U Shetty, Guru Prasad R, Akshay Rao
    Ramaiah Medical College Hospital, Bengaluru, Karnataka, India
32. **A Study on Clinical Profile and Complications Associated with Acute Inferior Wall Myocardial Infarction in a Tertiary Care Center**
    L Kishore Kumar, M Srihari Babu
    GSL Medical College and General Hospital, Rajamahendravaram, Andhra Pradesh, India
33. **Roar from the Heart...!**
    Himaja Pavuluri, Radhakrishnan D, Vijay Kumar P
    Andhra Medical College, Visakhapatnam, Andhra Pradesh, India
34. **Successful Medical Management of Chronic Thromboembolic Pulmonary Artery Hypertension with Decompensated Right Ventricular Failure after Postcardiopulmonary Resuscitation**
    Amit Anand, Amit Kumar, Ambuj Yadav, Himanshu, Pahul Ahuja, Neha
    King George's Medical University, Lucknow, Uttar Pradesh
35. **Hypochloremia as a Predictor of in Hospital Stay Duration in Patients with Acute Decompensated Heart Failure**
    Pranathi G, Megha Biradraj, Shaikh Mohammed Aslam S
    Ramaiah Medical College Hospital, Bengaluru, Karnataka, India
36. **Study of an Atypical Presentation of Aortic Dissection**
    Thamatapu Apoorva
    Kamineni Academy of Medical Sciences and Research Centre (KAMSRC), Hyderabad, Telangana, India
37. **Subclavian Steal Syndrome**
    Bakkannagari Narsimha Reddy
    Kamineni Academy of Medical Sciences and Research Centre (KAMSRC), Hyderabad, Telangana, India
38. **To Evaluate the Relationship between Triglyceride-glucose Index with Left Ventricular Dysfunction**
    Shreeraksha H, MM Basavaraju,
    Mysore Medical College and Research Institute, Mysuru, Karnataka, India
39. **A Study of Electrocardiogram, 2D Echo, and Coronary Angiography and Outcome in Patients of ST Segment Elevated Myocardial Infarction**
    Vishal Bajad, Anita Paritekar, MV Bansode, Sfurti Jadhav
    Rajarshi Chhatrapati Shahu Maharaj Government Medical College and CPR Hospital, Kolhapur, Maharashtra, India
40. **Incidental Detection of Coarctation of Aorta in Adult**
    Paul Nedumpurath, Basavaraj Utagi Dilip Johny
    KS Hegde Medical Academy (KSHEMA), Nitte (Deemed to be University), Mangaluru, Karnataka, India
41. **Takotsubo Cardiomyopathy in Postpartum**
    AS Mangal, S Muvva Gopal, A
    Mamata Medical College, Khammam, Telangana, India
42. **A Rare Case of Tetralogy of Fallot with Absent Pulmonary Valve Syndrome in a 15-year-old Girl**
    Neha Kumari
    Patna Medical College and Hospital, Patna, Bihar, India
43. **Enhancing Pulmonary Embolism Diagnosis: Clinical Probability—Adjusted D-dimer and Its Concordance with CT Pulmonary Angiography**
    Turupu Madhu Kiran Reddy, Sriramoju Prem Sagar
    Osmania Medical College, Hyderabad, Telangana, India
44. **A Case of Rheumatic Right Hemichorea (ASO Abs +ve)**
    P Dayasagar, S Senthil Kumar, Muthu, Parthiban
    Government Vellore Medical College, Vellore, Tamil Nadu, India

45. **Echocardiographic Changes in Chronic Kidney Disease Patients on Maintenance Hemodialysis**
Santhosh Kumar B S, Sangamesh Asuti
Gadag Institute of Medical Sciences, Gadag-Betageri, Karnataka, India

46. **Study of Prevalence of Microalbuminuria in Nondiabetic Ischemic Heart Disease**
Naveen N C, Sanjay Neeralagi
Karnataka Institute of Medical Sciences, Hubballi, Karnataka, India

47. **A Study on Diastolic Dysfunction in Asymptomatic Type 2 Diabetes Mellitus with Normal Systolic Function**
Chepuri Nithish, Lingaraj Lature
MNR Medical College and Hospital, Sangareddy, Telangana, India

48. **Occurrence of Sick Euthyroid Syndrome in ST Elevation Myocardial Infarction and Their Prognostic Significance:**
A Prospective Study.
Mohammad Faheem

50. **Age-related Isolated Mitral Sclerosis Presenting in Old Age: Case Report**
Navita Jain, Madhur Yadav, Vivek Suman, Ritika Sud, Niharika Agarwal
Lady Hardinge Medical College, Delhi, India

51. **An Uncommon Case of Endocarditis**
Siddhartha Vats, J Chakravarty, M Chaubey, R Bhattnagar
Institute of Medical Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, India

52. **The Typhoid Myocarditis**
Siddem Chakradhar

53. **A Study of Cardiological Autonomic Neuropathy in Type 2**
Diabetes Mellitus with Reference to QT Interval for Its Diagnosis
Shravan Kumar Samala, Lingaraj Lature
MNR Medical College and Hospital, Sangareddy, Telangana, India

54. **Managing Candida Pericarditis in a Young Male without Immunosuppression: A Complex Clinical Case Highlighting Diagnostic and Therapeutic Challenges**
Aditya Mishra, R C Ahuja, M Somani, A Kumar, S A Nadeem
Apollomedics Super Speciality Hospital, Lucknow, Uttar Pradesh, India

55. **Atypical Chest Pain and a Dormant Aortic Dissection**
Sudeepa Karumanchi

56. **The Study of Clinical Profile of Young MI Patients and the Posttreatment Clinical Outcome: A Retrospective Study**
Arunkumar Krishnan, AK Gautham, Pearlsy Grace Rajan, Vishnu Shankar Hariharan

57. **TB Pericardial Effusion as Cardiac Tamponade: The Calm before the Storm**
Arunkumar Krishnan, AK Gautham, Pearlsy Grace Rajan, Vishnu Shankar Hariharan

58. **A Study of Cardiovascular Changes in Recently Diagnosed Hypothyroid Patients**
B Lakshmi Nageswari, G Sajith Kishan, T Lasya Sindhu
GSL Medical College & General Hospital, Rajamahendravaram, Andhra Pradesh, India

59. **Risk Factor for Left Ventricular Hypertrophy in Patient with Diabetic Kidney Disease**
Kashish Garg, Pranjal Pankaj, Shrawan Kumar, Archana Krishna, Shweta Tripathi
Rama Medical College & Hospital Research Centre, Hapur, Uttar Pradesh, India

60. **Electrocardiographic Changes in COPD Patients**
Kashish Garg, Pranjal Pankaj, Shrawan Kumar, Archana Krishna, Shweta Tripathi
Rama Medical College & Hospital Research Centre, Hapur, Uttar Pradesh, India

61. **Analysis of Clinical Profile and Risk Factors among Newly Diagnosed Coronary Artery Disease Patients at Central Hospital, South Central Railway**
Balne Reshma
Central Hospital, South Central Railways, Lallaguda, Secuderabad, India

62. **Analysis of Clinical Profile and Risk Factors among Newly Diagnosed Coronary Artery Disease Patients at Central Hospital, South Central Railway**
Balne Reshma
Central Hospital, South Central Railways, Lallaguda, Secuderabad, India

63. **Atrial Myxoma with Mitral Regurgitation**
MSD Harshita, S Sreenivas
GSL Medical College & General Hospital, Rajamahendravaram, Andhra Pradesh, India

64. **Glomerulonephritis and Septic Pulmonary Embolism: A Rare but Life-threatening Complication of Permanent Pacemaker**
Selva Krishna, C Hariharan, N Gopalakrishnan, S Yogesh, S Suriya Prakash
Madras Medical College, Chennai, Tamil Nadu, India

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75. **Hyponatremia as a Predictor of Short-term Mortality in Acute ST Elevation Myocardial Infarction in a Tertiary Care Center**
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87. **The Significance of Liver Transaminases (Aspartate Aminotransferase and Alanine Aminotransferase) and De Ritis Ratio in Newly Diagnosed Acute Myocardial Infarction**
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18. **Correlation between C-reactive Protein and Glycemic Control in Adults with Type 2 Diabetes Mellitus**
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25. **Physician Preference on Medium for Patient Education for Diabetes Management in India**
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30. **Nonalcoholic Fatty Liver Disease Associated with Aortic Valve Sclerosis in Patients with Type 2 Diabetes Mellitus**
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43. **Association of Monocyte Count to HDL Cholesterol Ratio with Diabetic Retinopathy**
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44. **Anemia in Type 2 Diabetes Mellitus: A Case Series**
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48. **Study of Profile of Anemia in Patients with Type 2 Diabetes Mellitus**
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52. **Body Composition Analysis of Nonobese and Obese Type 2 Diabetes Mellitus Patients**
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54. **The Ratio of Triglycerides to HDL–Cholesterol: Is it a Novel Cost-effective Serum Marker of Insulin Resistance in Type 2 Diabetes Mellitus? A Cross-sectional Study"**
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55. **How Not to Treat Diabetes!**
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56. **To Study the Relationship between Microalbuminuria ACR with Glycemic Control in Type 2 DM**
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57. **Relationship between Vitamin D and HbA1c Levels in Individuals with Type 2 Diabetes in a Tertiary Care Center**
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59. **High or Low-dose of Glimepiride as Add-on to Metformin has Similar Glycemic Variability in Type 2 Diabetes Mellitus**
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60. **Correlation between Glycosylated Hemoglobin and Dyslipidemia in Type 2 Diabetes Mellitus Patients**
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61. **QT Prolongation in ECG in Type 2 Diabetes Patients and Its Correlation to HbA1c Levels**
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62. **Charcot Neuropathic Osteoarthropathy in a Nondiabetic Patient**
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64. **Effect of Positive Psychological Factors on HbA1c in Type 1 Diabetes Mellitus**
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66. **Corelation between C-reactive Protein and Glycemic Control in Adults with Type 2 Diabetes Mellitus**
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67. **A Cross-sectional Study to Evaluate Serum Non-HDL, HD Levels, and Microalbuminuria in Subjects with Type 2 Diabetes Mellitus and Ischemic Heart Disease**
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69. **Predictors of Poor Adherence to Antidiabetic Therapy in Patients with Type 2 Diabetes Mellitus**
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73. **Exploring the Interplay of Dyslipidemia and Diabetes Mellitus: A Cross-sectional Study to Determine Prevalence of Dyslipidemia in Patients with Type 2 Diabetes Mellitus**
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75. **Study on Nonalcoholic Fatty Liver Disease as a Risk Factor for the Development of Diabetic Nephropathy in Patients with Type 2 Diabetes Mellitus**
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77. **Type 2 Diabetes Mellitus Complications and VEGF-A: Correlating the Two**
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78. **To Correlate the Glycosylated Hemoglobin with Newly Diagnosed Type 2 Diabetes Mellitus Patient Having Left Ventricular Diastolic Dysfunction**
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79. **Clinical Implications of Glyoxalase 1 Gene Polymorphism and Elevated Levels of the Reactive Metabolite Methylglyoxal in the Susceptibility of Type 2 Diabetes Mellitus in the Patients from Asir to Tabuk Regions of Saudi Arabia**
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81. **Hypoglycemia-associated Autonomic Failure**
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10. **Efficacy and Safety of Once-a-day Formulation of Ranitidine HCL in Patients with GERD: A Subgroup Analysis of the Prograde Trial**
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7. **Quality of Life in CKD Patients on Hemodialysis**
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10. **Hemolytic Uremic Syndrome with Acute Kidney Injury Following Paraphenylenediamine-containing Hair Dye Ingestion**
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104. **Guillain–Barre Syndrome: AMAN Variant with Spinal Cord Involvement**
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107. **Gitelman Syndrome in Adult-onset Vaccine-associated Paralytic Poliomyelitis**
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109. **A Case of Autoimmune Encephalitis**
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110. **Age No Bar: A New Facet of Dawson Disease**
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124. **Vascular Loop at Cerebellopontine Angle Causing Bell's Palsy**
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133. **Ciprofloxacin-associated Posterior Reversible Encephalopathy Syndrome**
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Hinduhridaysamrat Balasaheb Thackeray Medical College and Dr Rustom Narsi Cooper Municipal General Hospital, Mumbai, Maharashtra, India

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135. Study of Serum Magnesium Levels in Subjects of Cerebrovascular Accidents with Respect to In Hospital Outcome
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136. Unravelling the Role of Plasma Fibrinogen in Acute Stroke
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137. Hashimoto's Encephalopathy: A Rare Presentation
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138. Not Your 'Typical Patient:" Cryptococcal Meningitis in an Immunocompetent Patient
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143. Prognostic Correlation in Guillain Barre Syndrome: Clinical and Electrodiagnostic Profile
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145. An Unusual Presentation of Oculomotor Nerve Palsy in Idiopathic Intracranial Hypertension
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147. Case of Severe Relapse of Autoimmune Encephalitis
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149. Prospective Cross-sectional Observational Study on Correlation of MRI Findings in New Onset Seizure Patients
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150. Arachnoid Cyst Causing Chronic Bell's Palsy: A Rare Presentation
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151. Happiness is Not Always Bliss
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152. Constellation of Diverse Disease
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153. Facioscapulohumeral Muscular Dystrophy
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154. Clinical and Microbiological Spectrum of Meningitis, Meningoencephalitis, Encephalitis in a Tertiary Care Hospital: An Observational Study
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155. Tolosa–Hunt Syndrome: Rare Disorder in a Young Patient
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156. A Clinico-radiological Study of Cerebral Venous Sinus Thrombosis (CVST) In Men in a Tertiary Care Center
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157. Atypical Presentation of Multiple Brainstem Tuberculomas
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158. Progressive Multifocal Leukoencephalopathy: A Rare Case Presentation
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159. Posterior Reversible Encephalopathy Syndrome
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160. A Case of New Onset Giddiness and Ataxia in a 50-year-old Male Diagnosed as Alcohol-induced Encephalopathy (Marchiafava–Bignami Disease)
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163. Untreated Wernicke's Encephalopathy Leading to Korsakoff Psychosis: Typical Clinical Findings with Atypical Radiological Presentation
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165. A Rare Case Report of Leigh's Disease
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166. Artery of Percheron Infarction: A Diagnostic Challenge
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167. A Case Report of Neuromyelitis Optica (NMO)
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168. Fatal Seronegative NMOSD: A Rare Presentation
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Tirath Ram Shah Hospital, Delhi, India

169. Case Report: Subacute Sclerosing Pan Encephalitis (SSPE): A Devastating Disease
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170. Atypical Case of Seronegative Autoimmune Encephalitis
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171. Von Recklinghausen Disease: Spinal Deformities (Kyphoscoliosis) and Parathyroid Adenoma in a Young Woman: A Classical but Rare Association
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172. CIDP in Association with Gitelman Syndrome
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173. Study on Prevalence of Hypocalcemia in Patients on Antiepileptic Therapy
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174. Splenium Infarction Presenting as Incongruous Homonymous Hemianopsia
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175. Paraproteinemia-associated with Pure Motor Axonal Neuropathy: A Case Report
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176. A Prospective Study of Clinical Profile in Acute Ischemic Stroke and Its Correlation with Carotid Artery Doppler
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177. LMN Type of Upper Limb Symmetric Weakness with Multiple Cranial Nerve Palsy as an Atypical Presentation of Gullian–Barre Syndrome
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178. Atypical Presentation of Posterior Reversible Encephalopathy as Left Hemiplegia
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179. Renal Manifestations in Caspr2 Antibody-associated Diseases
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180. A Study on Role of Prolactin and Creatine Phosphokinase in the Diagnosis of New Onset Seizures
Peram Bala Krishna, Vidyasagar C R, P Praveen Reddy, Chintha Aparna Reddy.
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181. Cerebral Collaterals in CT Angiography in Predicting Functional Outcome of Anterior Ischemic Stroke Patients: An Observational Study
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182. A Rare Case of Subacute Sclerosing Panencephalitis Presenting as Myoclonic Jerks
M Avinash, C Senthil
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183. "Nine" Syndrome: A Neuro-ophthalmologic Syndrome
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187. New Onset Seizure
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188. Dengue Fever Complicated with Guillain–Barre Syndrome
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34. **Lung Adenocarcinoma Presents as Cardiac Tamponade**
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6. **Prevalence and Types of Anemia in COPD**
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7. **Acute Reversible Thiamine Responsive Pulmonary Arterial Hypertension (Beriberi)**
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8. **Clinical Outcome of ARDS in Pneumonia in ICU**
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9. **Pulmonary Embolism in Young: The Great Masquerade**
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10. **Chronic Obstructive Pulmonary Disease (COPD) and Metabolic Syndrome: A Dual Menace**
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12. **A Case of Complex Pulmonary Arteriovenous Malformation Presenting as Cyanosis, Clubbing, and Polycythemia**
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13. **A Rare Case of Dark Fluid in Pleural Cavity**
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15. **Clinical and Bacteriological Profile of Respiratory Tract Infection in Geriatric Population**
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16. **A Study of Vitamin D Level in Hospitalised Chronic Obstructive Pulmonary Disease Patients and Correlation to Lung Functions**
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Government Medical College, Kota, Rajasthan, India

ANNOUNCEMENT

DR. J.C. PATEL AND DR. B.C. MEHTA BEST PAPERS AWARD 2023

1st Prize for Best Original Article entitled – Usage Pattern of Fixed-dose Combinations at ICMR Network of Rational Use of Medicine Centers across India: Recommendations for Policymakers and Prescribers – *Jaya Ranjalkar[1]*, Ratinder Jha[2], Sujith J Chandy[3], Heber R Bright[4], Preeta K Chugh[5], Chakra D Tripathi[6], Dinesh K Badyal[7], Sadasivam Balakrishnan[8], Bikash Medhi[9], Sandhya Kamath[10], Raakhi Tripathi[11], Harihar Dikshit[12], Sukalyan S Roy[13], Suparna Chatterjee[14], Manjari Bhattacharjee[15], Niyati Trivedi[16], Chetna Desai[17], Pooja Gupta[18], Atanu Roy[19], Ramasamy Raveendran[20], Jayanthi Mathaiyan[21], Sandeep Kaushal[22], Samriti Jain[23], Rajni Kaul[24], Nilima A Kshirsagar[25] – [1]Senior Research Officer (former), Department of Pharmacology and Clinical Pharmacology, Christian Medical College, Vellore, Tamil Nadu; [2]Additional Professor, Department of Pharmacology, All India Institute of Medical Sciences, Bhopal, Madhya Pradesh; [3]Professor and Head, Department of Pharmacology and Clinical Pharmacology, Christian Medical College; [4]Lecturer, Department of Pharmacy, Christian Medical College, Vellore, Tamil Nadu; [5]Associate Professor; [6]Professor and Former Head of the Department, Department of Pharmacology, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi; [7]Professor and Head, Department of Pharmacology, Christian Medical College, Ludhiana, Punjab; [8]Professor and Head, Department of Pharmacology, All India Institute of Medical Sciences, Bhopal, Madhya Pradesh; [9]Professor, Department of Pharmacology, Postgraduate Institute of Medical Education & Research, Chandigarh, Punjab; [10]Professor and Head; [11]Associate Professor, Department of Pharmacology and Therapeutics, Seth GS Medical College and KEM Hospital, Mumbai, Maharashtra; [12]Professor and Head; [13]Associate Professor, Department of Pharmacology, Indira Gandhi Institute of Medical Sciences, Patna, Bihar; [14]Professor; [15]Pharmacovigilance Associate, Department of Pharmacology, Institute of Postgraduate Medical Education & Research, Kolkata, West Bengal; [16]Professor and Head, Department of Pharmacology, Medical College Baroda, Vadodara; [17]Professor and Head, Department of Pharmacology, B.J. Medical College, Ahmedabad, Gujarat; [18]Additional Professor; [19]Ex-Research Associate, Department of Pharmacology, All India Institute of Medical Sciences, New Delhi; [20]Professor and Former Head; [21]Professor and Head, Department of Pharmacology, Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry; [22]Professor and Head; [23]Resident, Department of Pharmacology, Dayanand Medical College and Hospital, Ludhiana, Punjab; [24]Ex-Scientist-G & Head, Division of Basic Medical Sciences, Indian Council of Medical Research, New Delhi; [25]Former National Chair in Clinical Pharmacology, Indian Council for Medical Research (ICMR), New Delhi; Chairperson SAG BMS, Member SAB, NIRRH, Mumbai, Maharashtra, India; – J Assoc Physicians India 2023;71(2):30–36.*

2nd Prize for Best Original Article entitled – Study of Association of Chromosomal Region 1Q21–23 with Rheumatoid Arthritis and Their Correlation with Severity of Disease – *Liyakat Ali Gauri[1], Manoj Kumar Meena[2], Ummed Singh[3*], Nikita Manoj[4], Nadeem Liyakat[5], Ramratan Yadav[6], Ambreen Liyakat[7], Nisha[8] – [1]Senior Professor; [2]Senior Specialist, Department of Medicine, Sardar Patel Medical College, Bikaner; [3]Associate Professor, Department of Medicine, Shri Kalyan Government Medical College,Sikar; [4]Associate Professor, Department of Pathology; [5]Senior Resident, Department of Radiodiagnosis, Sardar Patel Medical College, Bikaner; [6]Associate Professor, Department of Surgery, Shri Kalyan Government Medical College, Sikar; [7]Director, The Galaxy Ultrasound and Diagnostic Centre, Jaipur; [8]Resident, Department of ENT, Shri Kalyan Government Medical College, Sikar, Rajasthan, India[*]; J Assoc Physicians India 2023;71(9):28–32.*

1st Prize for Best Case Report entitled – Familial Ectopia Lentis: Looking Beyond Marfan's Syndrome – *Shahanaze Javath Hussain[1], Deepak Amalnath[2*], Nirupama Kasthuri[3], Vishnu Karthika Subramaniyan[4] – [1]Senior resident, Department of Medicine; [2]Additional Professor, Department of Medicine; [3]Additional Professor, Department of Ophthalmology, JIPMER; [4]Junior Resident, Department of Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, India; – J Assoc Physicians India 2023;71(11):94–95.*

2nd Prize for Best Case Report entitled – Hirayama Disease: A Rare Case Report and Review – *Heli Kapoor[1], Varuna Yadav[2], Shubha L Margekar[3*], Debasish Chaudhury[4], Ashok Kumar[5], Ankur Verma[6] – [1]Senior Resident; [2,6]Postgraduate Resident; [3]Professor; [4]Director Professor Medicine, Lady Hardinge Medical College, New Delhi; [5]Professor of Medicine, Santosh Medical College & Hospitals, Ghaziabad, Uttar Pradesh, India; [*]Corresponding- Senior Resident; [2,6]Postgraduate Resident; [3]Professor; [4]Director Professor Medicine, Lady Hardinge Medical College, New Delhi; [5]Professor of Medicine, Santosh Medical College & Hospitals, Ghaziabad, Uttar Pradesh, – J Assoc Physicians India 2023;71(3):88–90.*

1st Prize for Best Correspondence entitled – Etiology and Clinical Profile of Patients with a Tree-in-bud Appearance on High-resolution Computed Tomogram of the Thorax – *Vyshak Uddur Surendra[1], Ann Roy Febi[2], Mohan K Manu[3], Aswini Kumar Mohapatra[4], Koteshwara Prakashini[5], Vishnu Prasad Shenoy[6], Kiran Chawla[7] – [1]Assistant Professor; [2]Senior Resident; [3,4]Professor, Department of Respiratory Medicine; [5]Professor, Department of Radiodiagnosis; [6]Associate Professor; [7]Professor, Department of Microbiology, Kasturba Medical College, Manipal, Manipal Academy of Higher Education, Manipal, Udupi, Karnataka – J Assoc Physicians India 2023;71(12):104–105.*

2nd Prize for Best Correspondence entitled – Morvan's Syndrome after Siddha Drug Intake – *Mangalapalli Vijay[1], Sowmini Padmaja Raman[2], Sakthi Velayutham Saravanan[3], Malcolm Jeyaraj Krishnasamy[4], Vivekasaravanan Raju[5], Mugundhan Krishnan[6] – [1]Postgraduate; [2–4]Assistant Professor; [5]Associate Professor; [6]Professor, Department of Neurology, Stanley Medical College (SMC), Chennai, Tamil Nadu, India – J Assoc Physicians India 2023;71(4):101.*

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