



Four-week Symptom-score Changes After Vonoprazan Prescription in Routine Indian Outpatient Practice: A Multicenter Retrospective Complete-Case Study

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ABSTRACT

Background and aims: Real-world evidence on vonoprazan for reflux-related upper gastrointestinal symptoms in India remains limited. This study described changes in recorded reflux-related symptom scores, physician global assessments (PGA), and documented adverse events among adults prescribed vonoprazan in routine clinical practice.

Materials and methods: This multicenter retrospective observational study reviewed medical records from 320 centers across India. A total of 1,679 adults with complete datasets who had received vonoprazan 20 mg once daily for approximately 4 weeks were included in the analysis. Reflux-related and dysmotility symptoms were assessed using the frequency scale for the symptoms of gastroesophageal reflux disease (FSSG) from baseline to week 4. PGA and adverse events documented in the medical records were also evaluated. The study did not include a comparator group.

Results: Among the 1,679 analyzed records, the mean ($\pm$ SD) total FSSG-derived score decreased from 28.84 ± 12.09 at baseline to 6.91 ± 7.48 at week 4. The corresponding absolute mean change from baseline was 21.93 points at week 4 (95% CI: 21.45–22.65). Reflux-domain and dysmotility-domain scores also decreased over the 4-week observation period. According to the PGA, most patients were categorized as very satisfactory (67.77%) or moderately satisfactory (28.92%). No adverse events were documented in the reviewed medical records during the 4 weeks.

Conclusion: Physician-recorded FSSG-derived symptom scores were lower at week 4 than at baseline in patients who had received vonoprazan 20 mg once daily for 4 weeks. These findings are descriptive and cannot establish a causal treatment effect. Passive retrospective adverse-event ascertainment and the short follow-up period preclude definitive conclusions regarding safety.

Keywords: Acid suppression therapy, Frequency scale for the symptoms of gastroesophageal reflux disease questionnaire, Potassium-competitive acid blocker, Real-world evidence, Reflux symptoms, Vonoprazan.

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INTRODUCTION

Gastroesophageal reflux disease (GERD) is defined by the Montreal classification (2006) as a condition in which the reflux of gastric contents into the esophagus results in troublesome symptoms and/or complications.¹ Common manifestations include heartburn, acid regurgitation, and retrosternal discomfort, which adversely affect quality of life and contribute substantially to healthcare utilization worldwide.²

Current management aims to relieve reflux-related symptoms, prevent recurrence, and improve patients' quality of life. Proton pump inhibitors (PPIs) remain the standard pharmacological therapy; however, some patients continue to experience persistent symptoms despite treatment, highlighting the need for additional therapeutic options.^{3,4}

Vonoprazan is a potassium-competitive acid blocker (P-CAB) that suppresses gastric acid secretion through reversible inhibition of the gastric H^+/K^+ -ATPase.^{5,6} Unlike PPIs, it

does not require acid activation and produces rapid and sustained gastric acid suppression.⁷

Clinical trials have demonstrated its efficacy in acid-related disorders, including GERD, and guidelines recognize P-CABs as a therapeutic option in appropriate clinical settings.^{5,7–11} However, published Indian real-world data on vonoprazan remain limited, particularly regarding symptom outcomes in routine clinical practice. Data from routine clinical practice may therefore provide additional evidence on symptom improvement and documented clinical events. Therefore, the objective of this study was to describe changes over 4 weeks in physician-recorded, FSSG-derived symptom scores and documented clinical events among adults treated with vonoprazan.

MATERIALS AND METHODS

Study Design and Data Source

This real-world, multicenter retrospective observational study was conducted using

medical records from outpatient departments of 320 centers across India. A nonprobability sampling approach was used based on available medical records from participating centers. Records were identified from routinely available clinical documentation at each center. Since this was a retrospective

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study, a complete center-level sampling frame could not be reconstructed, and the available documentation did not permit confirmation that records were selected consecutively or through a formal random-sampling procedure. Records of patients treated with vonoprazan during routine clinical practice were retrospectively reviewed from April 2025 to March 2026. Data extraction from the medical records was performed from 1 April 2026 to 15 April 2026. The database was locked on 20 April 2026, and statistical analyses were performed on 27 April 2026.

A total of 6,400 patient records were screened for patients who had been prescribed vonoprazan 20 mg for reflux-related upper gastrointestinal symptoms. Of these, 1,679 met the prespecified eligibility criteria and had sufficient baseline and follow-up data to be included in the final analysis. Data were retrieved using standardized case record forms (CRFs) developed solely for data abstraction from pre-existing medical records.

The FSSG questionnaire formed part of routine clinical assessment at participating centers and was completed during routine patient care before initiation of the retrospective review. No additional patient visits, questionnaire administration, or symptom assessments were undertaken for study purposes.

Study Population and Eligibility

Medical records of adults (≥ 18 years) of either sex with reflux-related upper gastrointestinal symptoms or a documented reflux-related diagnosis, a baseline FSSG score ≥ 8 , and who had received vonoprazan 20 mg once daily for approximately 4 weeks as part of routine clinical care were eligible for inclusion. The retrospective dataset did not systematically capture the clinical rationale for dose selection, dose modifications, or the influence of hepatic/renal function, polypharmacy, pregnancy status, or other patient-specific factors on treatment selection.

Patients were excluded based on protocol-defined clinical exclusion criteria, including recent use of acid-suppressive therapy, significant hepatic dysfunction, inflammatory bowel disease, malignancy, or known hypersensitivity to vonoprazan.

Because the study was retrospective, certain variables, including the fixed washout interval or quantitative biochemical threshold, exact duration of prior acid-suppressive therapy, previous response to acid-suppressive therapy, esophageal comorbidities, prior gastrointestinal/esophageal surgery, recent *Helicobacter pylori* eradication, and the treating physician's rationale for selecting vonoprazan, were not consistently available

and therefore were not used as standardized eligibility criteria.

Treating physicians extracted anonymized information from existing medical records into standardized data abstraction CRFs. These CRFs were developed exclusively for uniform data extraction and did not constitute prospective study forms or instruments for patient follow-up.

Assessment

The primary assessment was based on changes in the total physician-recorded Frequency Scale for the Symptoms of Gastroesophageal Reflux Disease (FSSG) score from baseline to week 4. The FSSG, developed by Kusano et al., consists of 12 items assessing reflux-related and dysmotility symptoms. Each item is scored from 0 (never) to 4 (always), giving a total score of 0–48. The reflux symptom domain comprises items 1, 4, 6, 7, 9, 10, and 12 (score range, 0–28), while the dysmotility symptom domain comprises items 2, 3, 5, 8, and 11 (score range, 0–20).⁶

In this study, the FSSG was administered using a modified method, whereby the English-language questionnaire was completed by the treating physician based on symptoms reported by the patient during routine clinical assessment. No additional FSSG assessments were performed for study purposes. FSSG assessments documented at baseline and week 4 were retrospectively extracted from the medical records. Because the questionnaire was physician-completed in this study rather than patient-completed as in its original validation, FSSG scores were interpreted as measures of symptom frequency changes in reflux-related symptoms.

Secondary assessment included heartburn response from baseline to week 4, physician global assessment (PGA) of treatment response, and recorded adverse drug reactions. Heartburn response was categorized as no resolution, partial resolution, or complete resolution, with any improvement defined as either partial or complete resolution. Heartburn response at week 4 was assessed at the physician's discretion and categorized as complete resolution (documented absence of heartburn), partial resolution (documented improvement from baseline with residual heartburn symptoms), or no resolution (absence of documented improvement).

The PGA was evaluated at week 4 by the treating physician using a four-point ordinal scale: 1 = not satisfactory, 2 = minimally satisfactory, 3 = moderately satisfactory, and 4 = very satisfactory. Missing assessments were not included in the analysis.

Statistical Methods

Data were compiled and managed using Microsoft Excel and analyzed using descriptive and inferential statistics. The statistical analyses were performed using jamovi version 2.7.29 and Microsoft Excel 2013. Categorical variables were summarized as counts and percentages, while continuous variables were expressed as mean $\pm$ standard deviation (SD). Changes in FSSG scores across baseline, week 2, and week 4 were assessed using the Friedman test, followed by Wilcoxon signed-rank tests for the baseline-to-week 4 comparison. A $p < 0.05$ was considered statistically significant, with 95% confidence intervals reported where applicable.

All baseline-eligible patients who initiated vonoprazan were retained in the analytical cohort, and available baseline and post-baseline information was included in the analyses wherever data permitted. Patients with incomplete follow-up were not excluded from the overall analytical cohort; their available treatment-disposition and outcome information was summarized descriptively where available. For the longitudinal symptom-score analysis, repeated-measures comparisons were restricted to patients with evaluable physician-recorded FSSG-derived scores at baseline and week 4.

Sampling and Data Retrieval

A nonprobability sampling approach was used based on available medical records from participating centers. The available documentation did not permit reconstruction of a complete sampling frame or confirmation that records were selected consecutively or through a formal random-sampling procedure. Demographic and clinical variables were abstracted only when adequately documented in the medical records.

Study size was determined by the number of eligible retrospective records available from participating centers during the predefined study period; no prospective sample-size calculation was performed. The study was intended to provide descriptive estimates of longitudinal symptom change using the available real-world dataset. Precision of the principal estimate was assessed using 95% confidence intervals rather than post hoc power calculations.

Ethical Considerations

The study protocol was reviewed and approved by the Pranav Diabetes Center Ethics Committee, Bangalore (Approval No. PDEC/VIRTUE/GERD/02 Apr 25; EC Registration: ECR/1217/Inst/KA/2019/RR 22). The Ethics Committee granted a waiver of individual informed consent for retrospective use of routinely collected clinical data.

RESULTS

Among records screened across the 320 participating centers, 1,679 patient records met the eligibility criteria, had evaluable physician-recorded FSSG-derived symptom scores at baseline and week 4, and were included in the analysis, while 73.77% of the screened records were excluded (Fig. 1).

Patient Demographic and Baseline Characteristics

A total of 1,679 patients were included in the analysis. The mean age was 44.9 ± 13.8 years. The largest proportion of patients belonged to the 38–47-year age group (446/1,679; 26.56%), followed by the 48–57-year (401/1,679; 23.88%) and 28–37-year (367/1,679; 21.86%) age groups. Among patients with recorded gender information, 631 (37.6%) were female and 1,048 (62.4%) were male. Regarding medical history, 728 patients (43.36%) had no reported medical history, while hypertension, hypertension with diabetes mellitus, and hypertension with diabetes mellitus and dyslipidemia were among the more frequently recorded comorbidity patterns. Detailed demographic and baseline clinical characteristics are presented in Table 1.

Acid reflux was the most frequently reported symptom (60%), followed by bloating, abdominal pain, and acidity. The most frequently reported diagnoses included GERD and related reflux disorders, followed by acid peptic disease [acid peptic disease (APD; ~5% and hypertension (1.07%)]. Other gastrointestinal conditions, including gastritis,

duodenal ulcer, irritable bowel syndrome, and epigastric pain, were reported in <1% of patients.

Changes in Physician-recorded FSSG-derived Symptom Scores over 4 Weeks

A total of 1,679 patient records were included in the FSSG analysis. FSSG-derived symptom scores progressively decreased throughout the 4-week observation period. Significant differences were observed across the time points for the total score and all individual FSSG parameters using the Friedman test ($p < 0.001$ for all comparisons). Similarly, baseline-to-week 4 comparisons using the Wilcoxon signed-rank test were statistically significant for the total score and all individual parameters ($p < 0.001$ for all comparisons; 95% CI: 21.45–22.65). Detailed results are presented in Tables 2 and 3.

The mean acid reflux domain score decreased significantly from 17.15 at baseline to 4.05 at week 4, representing a reduction of 13.10 points (76.38%) from baseline. Similarly, the combined dysmotility domain score

decreased from 11.67 at baseline to 2.88 at week 4, corresponding to a reduction of 8.79 points (75.32%). Both reductions were statistically significant ($p < 0.001$ for both comparisons, 95% CIs).

At baseline, heartburn severity scores were predominantly 4 and 3, reported by 763 (45.44%) and 539 (32.10%) patients, respectively. A baseline score of 2 was reported by 211 (12.57%) patients, while scores of 1 and 0 were reported by 91 (5.42%) and 75 (4.47%) patients, respectively. At week 4, 1,458/1,604 patients (90.9%) demonstrated improvement in heartburn, comprising 758 (47.26%) with partial resolution and 700 (43.64%) with complete resolution; 146 (9.10%) showed no resolution (Table 4).

Physician Global Assessment

Physician global assessment data were available for 1,663 patients, with 16 assessments missing. Among evaluable assessments, most were categorized as very satisfactory (67.77%) or moderately satisfactory (28.92%). Missing assessments were excluded from the analysis (Table 5).

Safety Assessment

The safety population comprised all unique patients who received at least one dose of vonoprazan during the study period ($n = 1,679$), including those aged ≥ 60 years. Adverse-event information was assessed from routinely documented medical records. No adverse events, adverse drug reactions, serious adverse events, or intolerance-related withdrawals were documented in the medical records of the included patients. Adverse-event information was based solely on routinely recorded medical records, with no active or protocol-mandated safety surveillance. Data completeness and internal consistency were assessed using the submitted CRFs; prospective source-data verification and on-site center monitoring were not performed. Therefore, the findings indicate the absence of documented adverse events rather than confirmation of their absence.

In the follow-up data, treatment discontinuation was documented in 462 patient records, while 503 patients switched to PPI therapy. The reasons for these treatment-discontinuation events were not consistently documented and therefore could not be reliably classified as lack of effectiveness, intolerance, or adverse events. Uncontrolled diabetes was documented in 471 patient records during follow-up and was recorded as a reason for ineligibility for further follow-up.

Available records did not establish a causal relationship with vonoprazan treatment, and

Table 1: Demographic and baseline clinical characteristics of the included medical records

Characteristic	Study population (N = 1,679)
Age, years, n (%)	
Mean $\pm$ SD	44.9 $\pm$ 13.8
18–27	151 (8.99)
28–37	367 (21.86)
38–47	446 (26.56)
48–57	401 (23.88)
58–67	196 (11.67)
68–77	95 (5.66)
78–87	23 (1.37)
Gender, n (%)	
Male	1,048 (62.42)
Female	631 (37.58)
Medical history, n (%)	
No reported medical history	728 (43.36)
Hypertension	155 (9.23)
Hypertension + diabetes mellitus	105 (6.25)
Hypertension + diabetes mellitus + dyslipidemia	66 (3.93)
Diabetes mellitus	49 (2.92)
Hypertension + dyslipidemia	45 (2.68)
Dyslipidemia	41 (2.44)
Asthma	24 (1.43)
Other combinations/ other reported conditions	451 (26.86)
Not recorded	15 (0.89)

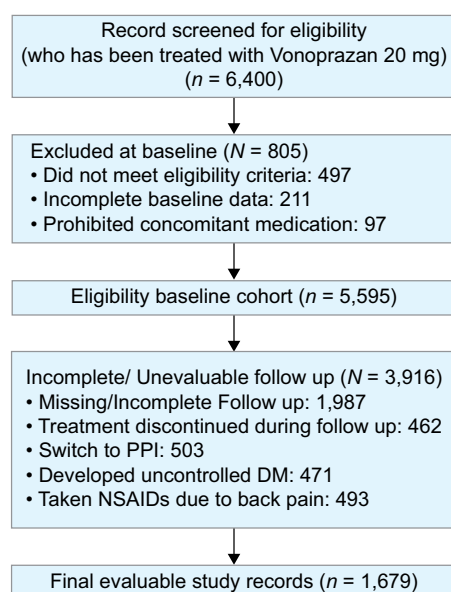


Fig. 1: Flow diagram of record screening, eligibility assessment, follow-up, and final evaluable study population

Table 2: FSSG-derived symptom scores at baseline, week 2, and week 4: Friedman test

FSSG Parameter	Time Point	Mean	Median	IQR	Absolute Mean Change	χ^2	df	p-value	Result
Heartburn	Baseline	3.07	3.00	1.00	–	2577.00	2	<0.001	Significant
	2 weeks	1.8	2.00	1.00	1.27				
	4 weeks	0.74	1.00	1.00	1.06				
Heartburn after meals	Baseline	2.85	3.00	2.00	–	2543.00	2	<0.001	Significant
	2 weeks	1.63	2.00	1.00	1.22				
	4 weeks	0.68	1.00	1.00	0.95				
Heartburn on bending forward	Baseline	2.48	3.00	2.00	–	2280.00	2	<0.001	Significant
	2 weeks	1.42	2.00	1.00	1.06				
	4 weeks	0.59	0.00	1.00	0.83				
Fullness while eating	Baseline	2.48	3.00	2.00	–	2310.00	2	<0.001	Significant
	2 weeks	1.35	1.00	1.00	1.13				
	4 weeks	0.58	0.00	1.00	0.77				
Heavy stomach after meals	Baseline	2.49	3.00	2.00	–	2301.00	2	<0.001	Significant
	2 weeks	1.37	1.00	1.00	1.12				
	4 weeks	0.61	0.00	1.00	0.76				
Feeling sick after meals	Baseline	2.1	2.00	2.00	–	1931.00	2	<0.001	Significant
	2 weeks	1.16	1.00	2.00	0.94				
	4 weeks	0.51	0.00	1.00	0.65				
Bloating stomach	Baseline	2.43	3.00	2.00	–	2200.00	2	<0.001	Significant
	2 weeks	1.37	1.00	1.00	1.06				
	4 weeks	0.6	0.00	1.00	0.77				
Burp	Baseline	2.17	2.00	2.00	–	1831.00	2	<0.001	Significant
	2 weeks	1.25	1.00	2.00	0.92				
	4 weeks	0.58	0.00	1.00	0.67				
Acid coming up to throat	Baseline	2.39	3.00	3.00	–	2194.00	2	<0.001	Significant
	2 weeks	1.36	1.00	2.00	1.03				
	4 weeks	0.56	0.00	1.00	0.80				
Burning sensation in throat	Baseline	2.32	3.00	2.00	–	2154.00	2	<0.001	Significant
	2 weeks	1.31	1.00	2.00	1.01				
	4 weeks	0.54	0.00	1.00	0.77				
Occasional chest rubbing with hand	Baseline	1.98	2.00	3.00	–	1857.00	2	<0.001	Significant
	2 weeks	1.08	1.00	2.00	0.90				
	4 weeks	0.46	0.00	1.00	0.62				
Difficulty in swallowing	Baseline	2.06	2.00	2.00	–	1990.00	2	<0.001	Significant
	2 weeks	1.13	1.00	2.00	0.93				
	4 weeks	0.48	0.00	1.00	0.65				

these cases were not classified as adverse drug reactions in the absence of documented causality assessment.

DISCUSSION

In this multicenter retrospective analysis of routinely collected clinical data, physician-recorded FSSG-derived symptom scores at the documented week-4 assessment were lower than the corresponding baseline scores among patients with evaluable data at both time points. The mean total FSSG-derived score decreased from 28.84 at baseline to 6.91 at week 4. Reductions were also observed in the reflux domain, from 17.15 at baseline to 4.05 at week 4, corresponding to

a 76.38% reduction, and in the dysmotility domain, from 11.67 at baseline to 2.88 at week 4, corresponding to a 75.32% reduction (both $p < 0.001$). Among patients with evaluable heartburn assessments, 90.9% had documented partial or complete resolution by week 4 (47.26% with partial resolution and 43.64% with complete resolution). These findings describe the pattern of symptom-score changes recorded during approximately 4 weeks of routine clinical use of vonoprazan. Importantly, because of the retrospective, noncomparative design, these observations do not establish a causal treatment effect.

The observed reduction in physician-recorded FSSG-derived symptom scores is broadly consistent with previous reports

describing improvement in reflux-related symptoms during vonoprazan therapy.^{5,12–16} However, direct numerical comparison of previous studies should be interpreted cautiously because of differences in patient populations, diagnostic criteria, treatment history, outcome definitions, follow-up duration, and methods of outcome assessment. In particular, the present study was not designed to compare vonoprazan with PPIs or other therapies. Therefore, no conclusions regarding comparative effectiveness or superiority can be drawn from these data.

The observed symptom trajectory is compatible with the acid-suppressive pharmacology of vonoprazan as a P-CAB.^{7,10}

Table 3: Baseline-to-week 4 changes in FSSG-derived symptom scores (Wilcoxon signed-rank test)

FSSG parameter	Baseline, mean $\pm$ SD; median	Week 4, mean $\pm$ SD; median	95% CI (lower–upper)	IQR baseline vs week 4	Effect size	% effect	Absolute mean change	95% CI (lower–upper)	Wilcoxon W	p-value
Heartburn	3.07 $\pm$ 1.10; 3.00	0.74 $\pm$ 0.80; 1.00	2.50–2.50	1.00–1.00	0.97	76.41	2.33	2.29–2.41	1,170,000	<0.001
Heartburn after meals	2.85 $\pm$ 1.16; 3.00	0.68 $\pm$ 0.78; 1.00	2.50–2.50	1.00–1.00	0.97	76.70	2.17	2.12–2.24	1,130,000	<0.001
Heartburn on bending forward	2.48 $\pm$ 1.34; 3.00	0.59 $\pm$ 0.80; 0.00	2.50–2.50	2.00–1.00	0.97	76.74	1.89	1.84–1.97	965,728	<0.001
Fullness while eating	2.48 $\pm$ 1.34; 3.00	0.58 $\pm$ 0.79; 0.00	2.50–2.50	2.00–1.00	0.98	77.14	1.9	1.85–1.98	951,212	<0.001
Heavy stomach after meals	2.49 $\pm$ 1.30; 3.00	0.61 $\pm$ 0.80; 0.00	2.00–2.50	2.00–1.00	0.97	76.15	1.88	1.83–1.95	1,010,000	<0.001
Feeling sick after meals	2.10 $\pm$ 1.47; 2.00	0.51 $\pm$ 0.77; 0.00	2.00–2.00	2.00–1.00	0.96	76.48	1.59	1.53–1.67	778,676	<0.001
Bloated stomach	2.43 $\pm$ 1.33; 3.00	0.60 $\pm$ 0.81; 0.00	2.00–2.50	2.00–1.00	0.96	75.82	1.83	1.78–1.91	938,995	<0.001
Burp	2.17 $\pm$ 1.47; 3.00	0.58 $\pm$ 0.83; 0.00	2.00–2.50	2.00–1.00	0.95	73.74	1.59	1.54–1.67	748,638	<0.001
Acid coming up to throat	2.39 $\pm$ 1.39; 3.00	0.56 $\pm$ 0.79; 0.00	2.00–2.50	3.00–1.00	0.96	77.22	1.83	1.78–1.91	911,310	<0.001
Burning sensation in throat	2.32 $\pm$ 1.39; 3.00	0.54 $\pm$ 0.80; 0.00	2.00–2.50	2.00–1.00	0.97	77.52	1.78	1.73–1.86	876,789	<0.001
Occasional chest rubbing with hands	1.98 $\pm$ 1.45; 2.00	0.46 $\pm$ 0.74; 0.00	2.00–2.00	3.00–1.00	0.96	77.33	1.52	1.46–1.60	716,719	<0.001
Difficulty in swallowing	2.06 $\pm$ 1.38; 2.00	0.48 $\pm$ 0.77; 0.00	2.00–2.00	2.00–1.00	0.96	77.58	1.58	1.53–1.66	798,454	<0.001
Total Score	28.84 $\pm$ 12.09; 31.00	6.91 $\pm$ 7.48; 5.00	22.50–23.50	21.00–9.00	0.97	76.63	21.93	21.45–22.65	1,270,000	<0.001

*Bonferroni correction was applied to account for multiple comparisons across the 12 parameters. The adjusted level of statistical significance was calculated by dividing the conventional significance level of 0.05 by the number of parameters, resulting in an adjusted significance threshold of $p < 0.00417$. Therefore, results with $p < 0.00417$ were considered statistically significant after Bonferroni correction.

Table 4: Week-4 heartburn resolution according to age group among patients with documented baseline heartburn

Age	Partial resolution		Complete resolution		No resolution		Total	
18–27	47	2.93%	73	4.55%	24	1.50%	144	8.98%
28–37	175	10.91%	149	9.29%	27	1.68%	351	21.88%
38–47	212	13.22%	182	11.35%	32	2.00%	426	26.56%
48–57	175	10.91%	169	10.54%	39	2.43%	383	23.88%
58–67	87	5.42%	84	5.24%	16	1.00%	187	11.66%
68–77	52	3.24%	32	2.00%	7	0.44%	91	5.67%
78–87	10	0.62%	11	0.69%	1	0.06%	22	1.37%
Total	758	47.26%	700	43.64%	146	9.10%	1604	100.00%

However, pharmacological plausibility does not establish that the observed changes were attributable to vonoprazan. Regression to the mean and natural variation in symptom severity may have contributed to the observed reductions. In addition, treatment adherence, concomitant medications, rescue therapies, lifestyle changes, and other co-interventions were not consistently captured in the retrospective medical records. These factors may have influenced symptom trajectories

during follow-up and could not be fully accounted for in the present analysis.

Physician global assessment findings provided a descriptive clinician assessment at week 4. However, PGA was performed during routine clinical care and was not blinded or independent of the treating physician's assessment. Therefore, PGA findings should not be interpreted as independent confirmation of treatment benefit. Assessment bias may have been

introduced because the modified FSSG was physician-completed rather than patient-completed.

No adverse events were documented in the available medical records during the observation period. This finding should be interpreted cautiously because adverse-event information was obtained retrospectively from routinely recorded clinical information, with no active or protocol-mandated adverse-event surveillance. Thus, the findings indicate

Table 5: Physician global assessment of treatment response

Scale (Physician global assessment)	No. of patients	Percentage
1 (Not satisfactory)	5	0.30%
2 (Minimally satisfactory)	50	3.01%
3 (Moderately satisfactory)	481	28.92%
4 (Very satisfactory)	1127	67.77%
NA	16	
Evaluable assessments	1663	100%
Mean		3.64
Median		4.00
SD		0.56

the absence of documented adverse events rather than confirmation of their absence. Treatment discontinuation and switching to PPI therapy were documented as postbaseline treatment-disposition events; however, the reasons for these events were not consistently recorded and therefore could not reliably be attributed *post hoc* to lack of effectiveness, intolerance, or adverse events. Similarly, cases documented as uncontrolled diabetes or use of NSAIDs for back pain should be interpreted as documented clinical or treatment-disposition events rather than as treatment-related adverse events in the absence of appropriate clinical and causality assessment.

Overall, this study provides descriptive real-world data on changes in physician-recorded FSSG-derived symptom scores and documented clinical events during approximately 4 weeks of vonoprazan use in routine clinical practice in India. The findings should be considered hypothesis-generating rather than confirmatory of treatment effectiveness or safety. Prospective studies with standardized patient-reported outcome assessment, predefined follow-up intervals, systematic safety surveillance, appropriate handling of missing data, and comparator groups are warranted to further evaluate the clinical effectiveness and safety of vonoprazan in routine practice.

ADVANTAGES AND LIMITATIONS

The study has several strengths, including its multicenter design, large real-world cohort, assessment of symptom outcomes at multiple time points, and inclusion of patients across a broad adult age range, providing insights into the use of vonoprazan in routine clinical practice.

Several limitations should, however, be acknowledged. The retrospective

observational, single-arm, noncomparative design precludes causal inference and conclusions regarding comparative superiority over proton pump inhibitors or other acid-suppressive therapies. A major limitation was the substantial postbaseline attrition: of the 5,595 baseline-eligible vonoprazan initiators, only 1,679 had evaluable physician-recorded FSSG-derived scores at baseline and week 4, representing 30.01% of the baseline-eligible cohort and 69.99% lacking complete longitudinal FSSG assessments. This extent of incomplete follow-up may have introduced attrition and selection bias, and the findings may therefore not be generalizable to all baseline-eligible initiators. Retrospective data availability was incomplete, and information on alarm features, specialist referral, concomitant therapies, treatment adherence, treatment interruptions, rescue medication use, and long-term outcomes was not consistently available. The absence of endoscopic assessment and long-term surveillance precluded evaluation of mucosal healing, relapse, and recurrence prevention. The FSSG was administered using a modified method in which the English-language questionnaire was completed by the treating physician based on patient-reported symptoms rather than using the original patient-completed format, which may introduce reporting or assessment bias. In addition, PGA was assessed by treating physicians aware of treatment exposure, introducing potential observer or expectation bias, while safety evaluation relied on documented events rather than active surveillance.

Age-stratified analyses were descriptive and exploratory, without formal age-by-time interaction testing. The small sample sizes in older age groups, particularly those aged 78–87 years, limited the precision of subgroup estimates; therefore, apparent similarities across age groups should not be interpreted as evidence of equivalent response or absence of age-related effect modification. Accordingly, the observed reduction in symptom scores should be interpreted as a descriptive change over the 4-week observation period rather than evidence of treatment-attributable effectiveness.

Given the descriptive and hypothesis-generating nature of these findings, future prospective real-world and controlled comparative studies with active comparator arms, including PPI-based therapy, are warranted to better characterize the relative effectiveness, long-term outcomes, recurrence prevention, mucosal healing, patient-reported quality of life, and safety profile of vonoprazan in reflux-related

upper gastrointestinal symptoms. Additional evaluation in elderly patients and individuals with comorbidities or polypharmacy may further help inform evidence-based treatment strategies in routine clinical practice.

CONCLUSION

Among selected patients with complete follow-up, physician-recorded FSSG-derived symptom scores were lower at weeks 2 and 4 than at baseline. Nonrandom sampling, substantial attrition, absence of a comparator, and passive safety ascertainment limit conclusions regarding treatment-attributable effectiveness and safety.

ETHICS APPROVAL

This retrospective analysis was conducted using anonymized patient records. The study received ethical clearance from the Pranav Diabetes Center Ethics Committee, Bengaluru, under approval number PDEC/VIRTUE/GERD/02 Apr 25 (EC Registration: ECR/1217/Inst/KA/2019/RR 22).

INFORMED CONSENT

The Ethics Committee granted a waiver of individual informed consent for the retrospective use of routinely collected clinical data.

CLINICAL TRIAL REGISTRATION

Clinical Trials Registry of India (CTRI/2026/03/105353).

ROLE OF SPONSOR

The sponsor had no role in the study design, data collection, data analysis, interpretation of results, manuscript preparation, or decision to publish.

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CONFLICT OF INTEREST

Rajat Singal, Priyank Shah, and Darshan Rana are full-time employees of Mankind Pharma Limited, India, which markets vonoprazan. No competing interests were reported by the other authors.

MEDICAL WRITING AND EDITORIAL ASSISTANCE

The authors acknowledge IntelliMed Healthcare Solutions for its support with

data management, statistical analysis, and manuscript development.

DATA OWNERSHIP AND ACCESS

The authors confirm that they had full access to the study data and take responsibility for the integrity and accuracy of the data analysis.

DATA AVAILABILITY

The analyzed data are presented in tabulated form within the manuscript. Individual de-identified participant-level data are not publicly available but may be provided upon reasonable request to the corresponding author.

PROTOCOL AVAILABILITY

The study protocol is available from the corresponding author upon reasonable request.

CODE AVAILABILITY

No custom code was developed or used for the analyses reported in this study. Any statistical analyses were performed using standard, commercially available software. Further details are available from the corresponding author upon reasonable request.

AUTHOR CONTRIBUTIONS

All authors contributed to the design of the work, data acquisition, and drafting or critical revision of the manuscript and approved the final version. RS, PS, and DR contributed to the analysis and interpretation of data. All authors reviewed the manuscript.

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