Letter to the Editor regarding "Ventilator-associated Pneumonia: A Prospective Observational Study"

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Respected Sir/Madam,

We read with considerable interest the article titled "Ventilator-associated Pneumonia: A Prospective Observational Study" by Natarajan et al., published in the May 2025 issue of JAPI.[1] We commend the authors for addressing a highly relevant and underexplored topic in the Indian critical care setting. The prospective design, adherence to standard diagnostic criteria, and detailed microbiological analysis make this study a valuable contribution to the literature on healthcare-associated infections, particularly in resource-limited environments.

The study effectively highlights the incidence and high mortality associated with ventilator-associated pneumonia (VAP), and its findings reinforce the need for strict implementation of infection control protocols and VAP prevention bundles in intensive care units (ICUs). The inclusion of local antimicrobial resistance data, especially the high prevalence of extensively drug-resistant (XDR) organisms, provides critical insights for empirical antibiotic stewardship.

However, we would like to respectfully highlight a few limitations that, if addressed in future studies, could further enhance the impact and generalizability of the findings:

- The authors have defined VAP clinically and on the basis of radiographic changes, as per standard practice. However, in some cases, radiographic infiltrates can be nonspecific, particularly in ICU settings. Therefore, including adjunct diagnostic tools such as procalcitonin levels and Clinical Pulmonary Infection Score (CPIS) would have reduced the false positives and thus enhanced the diagnostic accuracy.
- Several other clinically important and modifiable risk factors were not evaluated, including emergency intubation, intrahospital transport, subglottic suctioning, patient positioning (semi-recumbent), and maintenance of endotracheal cuff pressure. Omitting these factors limits the completeness of risk factor analysis, leaving out variables that could have important preventive implications. The authors have reported a VAP-associated mortality rate of 50%, but the absence of inclusion of illness severity scores like APACHE II or SOFA makes it difficult to tell whether the deaths were due to VAP alone or due to any underlying critical illness (like sepsis, multiorgan failure, or primary disease process).[2] Without a score, it is difficult to assess the baseline health status of the patient. Differences in mortality can be due to underlying illness severity rather than VAP. Inclusion of such illness severity scores would have helped to adjust for confounding variables and thus to quantify VAP-attributable mortality better.
- The study reported a 50% mortality rate among patients with VAP. It did not distinguish between deaths directly attributable to VAP and those due to other causes (e.g., sepsis, multiorgan failure, or primary disease process). This affects the validity of the mortality findings. Without attributing mortality specifically to VAP, the impact of VAP on outcomes remains unclear.
- The study included 138 patients, with 30 developing VAP. Although the sample size was statistically calculated, it may have been too small to detect associations between VAP and less common or weaker risk factors. Some nonsignificant findings [e.g., use of proton pump inhibitors (PPIs), prior antibiotic use] could be due to type II error (false negative), limiting the robustness of risk factor analysis.
- Patients were followed during their ICU stay only. There was no follow-up after ICU discharge to assess the long-term outcomes of VAP survivors (e.g., lung function, readmission, quality of life). VAP may have lasting effects after ICU discharge, and without follow-up, the true burden of disease is underestimated.[3]
- The authors have mentioned the usage of the VAP prevention bundle, but detailed documentation of adherence to individual bundle components, like daily sedation vacation, head-end of bed elevation, oral care of intubated patients, etc., has not been mentioned. Mentioning individual bundle components would have provided insight into the gaps in implementation, which could have been a reason for the high incidence of mortality.
- The study has identified factors like age >55 years, chronic lung disease, and prolonged ventilation as significant risk factors. However, other known contributors, like emergency intubation, suboptimal endotracheal cuff pressures, and transport within the hospital, were not analyzed. Inclusion of the above factors could have provided a more elaborate risk profile.
- The high rates of extended-spectrum beta-lactamase (ESBL) (100%), XDR (66.7%), and multidrug-resistant (MDR) (13.3%) among isolates call for routine surveillance of local antibiograms, restriction of broad-spectrum empiric antibiotics, and following of ICU-specific antibiotic stewardship protocols. It would have been helpful if the authors had commented on the antibiotic usage in their ICU, particularly regarding empirical antibiotic choices and deescalation practices.

In conclusion, the study lays the groundwork for future research.

This study elaborates the increasing burden of VAP and MDR organisms in Indian ICUs. The findings underscore the urgent need for stringent infection control practices, protocol-based weaning, and focused stewardship programs.

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References

1. Natarajan K, Bahulikar A, Phalgune DS. Ventilator-associated pneumonia: a prospective observational study. J Assoc Physicians India 2025;73(5):21–24.
2. Kamal M, Khan AN, Ali G. The role of APACHE II scoring system on the development and outcome of VAP in intensive care unit. Pak J Chest Med 2013;19(2):1–13.
3. Amin A. Clinical and economic consequences of ventilator-associated pneumonia. Clin Infect Dis 2009;49(Suppl 1):S36–S43.