Editorial

## Enhancing Prognostic Accuracy in Acute COPD Exacerbations: The Role of DECAF-L and Other Predictive Scores

## Sunil Chhajwani

Pramukhswami Medical College, Bhaikaka University Faculty of Medicine, Department of Emergency Medicine, Anand, İndia

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Chronic obstructive pulmonary disease (COPD) remains a formidable global health challenge, projected to rise as a leading cause of mortality and disability worldwide. Its acute exacerbations (AECOPD) frequently lead to emergency department (ED) visits and hospitalizations, placing a significant burden on healthcare systems (1,2). Accurately predicting patient outcomes, including the need for intensive care, length of hospital stay, and short-term mortality, is paramount for timely intervention and optimal resource allocation in the ED setting.

In response to this critical need, several prognostic scoring systems have been developed to aid clinicians in risk stratification. The BAP-65 score, incorporating parameters such as blood urea nitrogen, altered mental status, pulse rate, and age, serves as an early indicator for predicting the need for mechanical ventilation and mortality risk in acute exacerbations (3). Similarly, the DECAF score, which evaluates dyspnea, eosinopenia, consolidation, acidemia, and atrial fibrillation, has proven its utility in predicting in-hospital mortality among AECOPD patients, demonstrating strong performance over other clinical scores (4,5). These scores offer valuable, readily available insights for emergency physicians and consultation teams in managing COPD patients (6,7).

While these established scores provide foundational insights, the complex pathophysiology of AECOPD, often characterized by hypoxemia and inflammation, suggests the potential for additional, dynamically changing biomarkers. Lactic acid, a byproduct of anaerobic metabolism under hypoxemic conditions, has emerged as a significant prognostic indicator in various acute respiratory conditions, reflecting the severity of tissue hypoperfusion and cellular distress (8,9). Recent research highlights the enhanced predictive power of the DECAF-L score, which integrates blood lactate levels into the DECAF framework. A prospective observational study of patients admitted to the ED with acute COPD exacerbations demonstrated that while BAP-65 and DECAF scores were significantly associated with initial clinical outcomes (discharge, general ward admission, or intensive care unit transfer), the DECAF-L score stood out as the sole independent predictor of 30-day mortality. Patients with higher DECAF-L scores exhibited a significantly increased risk of mortality (odds ratio: 1.296 for each unit increase), with lactate values also being independently higher in deceased patients (study findings).

This finding underscores the clinical utility of incorporating lactate into existing prognostic models. The rapid availability of lactate measurements in the ED, coupled with the straightforward calculation of DECAF-L, makes it an accessible and practical tool. For emergency physicians, a reliable score like DECAF-L can facilitate crucial decisions regarding patient disposition, guiding whether a patient can be safely discharged, requires general ward admission, or necessitates immediate intensive care unit transfer, thereby optimizing patient flow and potentially preventing adverse outcomes, such as repeated admissions or delayed critical care.

## Conclusion

The integration of lactate into established prognostic scores like DECAF-L represents a significant advancement in the acute management of AECOPD. While further multi-center validation



**Corresponding Author:** Sunil Chhajwani MD, Pramukhswami Medical College, Bhaikaka University Faculty of Medicine, Department of Emergency Medicine, Anand, India **E-mail:** sunilchhajwani@gmail.com **ORCID ID:** orcid.org/0000-0002-5694-9683 Received: 01.06.2025 Accepted: 02.06.2025 Published: 04.06.2025

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© Copyright 2025 The Emergency Physicians Association of Turkey / Eurasian Journal of Emergency Medicine published by Galenos Publishing House Licenced by Creative Commons Attribution-NonCommercial-NoDerivatives (CC BY-NC-ND) 4.0 International License. studies are warranted to generalize these findings, the compelling evidence from recent research strongly advocates for the routine assessment and application of DECAF-L in ED patients presenting with acute exacerbations of COPD. Such tools empower clinicians to make more informed and timely decisions, ultimately improving short-term morbidity and mortality for this vulnerable patient population.

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