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Predictive value of the modified early warning score for mortality and intensive care unit admission in Lassa fever patients: A retrospective analysis

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Introduction

Early identification of clinical deterioration in Lassa fever is critical for improving patient outcomes. The Modified Early Warning Score (MEWS) is a simple bedside tool based on physiological parameters. This study evaluated the predictive value of MEWS for mortality and ICU admission among patients with Lassa fever.

Methods

We conducted a retrospective analysis of 128 patients admitted with confirmed Lassa fever between March 2023 and February 2024. MEWS was computed from recorded vital signs at admission. Receiver Operating Characteristic (ROC) analysis was used to determine optimal cut-off values for predicting in-hospital mortality and ICU admission. Logistic regression models were applied to assess the association between categorized MEWS and clinical outcomes.

Results

The MEWS ranged from 0 to 10 with a median of 2 and an interquartile range of 1-3.5. During admission, 12 patients (9.4%) died, and 19 (14.8%) required ICU admission. For mortality, the optimal MEWS threshold was ≥3, yielding a sensitivity of 75% and specificity of 80%. The area under the ROC curve (AUC) was 0.81 (95%CI: 0.66–0.96). Logistic regression showed a significant association between elevated MEWS and mortality. Patients with MEWS ≥3 had nearly 10 times the odds of dying compared to those with MEWS <3 (OR=9.9; 95%CI: 2.1–47.3; p=0.004). For ICU admission, the optimal MEWS threshold was ≥2 (sensitivity:68%, specificity:67%), with an AUC of 0.70 (95%CI: 0.58–0.82). The association between

MEWS ≥2 and ICU admission was borderline significant (OR=3.1; 95%CI: 1.0–9.8; p=0.060).

Conclusion

MEWS at admission may be useful for identifying Lassa fever patients at higher risk of mortality. A threshold of ≥3 was predictive of in-hospital death. Its utility for predicting ICU admission is less clear and requires further validation. Integrating MEWS into routine triage protocols may aid early risk stratification and improve clinical decision-making.