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Derivation of a New Bioscore for Predicting Mortality in Sepsis

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Introduction: Currently, there is a lack of clinically feasible and reliable method for discriminating outcome in sepsis. We aimed to derive a new bioscore for predicting 30-day mortality in sepsis using a combination of biomarkers and clinical indexes. **Materials and Methods:** This secondary analysis of a prospectively collected data included 159 septic patients admitted to an intensive care unit (ICU). We collected data for key variables considered for inclusion in the score which included: age, sex, source of admission, comorbidities, microorganism, bacteraemia, site of infection, septic shock status, baseline Simplified Acute Physiological Score II, Sequential Organ Failure Assessment (SOFA) score (total and organ sub-scores), C-reactive protein, procalcitonin and interleukin-6 (IL-6). Approximate quintiles of each variable were assigned points based on the strength of their association with 30-day mortality. **Results:** Based on the statistical significance in the logistic regression model, the final score used candidate variables of age, central nervous system and liver SOFA sub-scores and IL-6. The bioscore predicted 30-day mortality with a very good performance [area under the receiver operating characteristic curve 0.814 (95% CI 0.745-0.871, $p < 0.0001$)] in our sepsis cohort. A bioscore greater than 4 predicted 30-day mortality with 80.4% sensitivity, 69.9% specificity, 2.67 positive likelihood ratio and 0.28 negative likelihood ratio. As the score increased, so did mortality rate. **Conclusion:** A new bioscore combining age, central nervous system and liver SOFA sub-scores and IL-6 measured on ICU admission improves prediction of mortality in sepsis.