

A new method to predict hospital mortality in severe community acquired pneumonia- Xin Wang- Tianjin 4th Central Hospital

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Background & Aim: The aim of this study is to develop a new method that is able to accurately predict the 28 day hospital mortality in patients with severe community acquired pneumonia (SCAP) at an early stage.

Methods: We selected 37,348 SCAP patients in ICU from 173 hospitals during 2011.01–2013.12. The predictive factors for 28 day hospital mortality were evaluated retrospectively. All cases underwent intensive care, blood routine, blood biochemical tests and arterial blood gas analysis. Under the classification and regression tree (CART) analysis, a new clinical scoring system was developed for early prediction in SCAP patients. The receiver operating characteristic (ROC) curve was plotted to calculate the area under the receiver operating characteristic curve (AUC).

Results: A novel clinical model named CLCGH scoring system, including serum creatinine (Cr) ≥ 259.5 $\mu\text{mol/L}$, leukocyte (WBC) $\geq 17.35 \times 10^9/\text{L}$, C-reactive protein (CRP) ≥ 189.4 $\mu\text{g/mL}$, GCS ≤ 9 and serum $\text{HCO}_3^- \leq 17.65$ mmol/L , was carried out and each index was an independent factor for hospital mortality in SCAP. In validation cohort, the AUC of the new scoring system was 0.889 for prediction of hospital mortality, which was similar to SOFA score 0.877, APACHE II score 0.864, and was better than the PSI score 0.761 and CURB-65 score 0.767.

Conclusions: The new scoring system CLCGH is an efficient, accurate and objective method to predicate the early hospital mortality among SCAP patients.