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Title: Comparison of the predictive performance of severity assessment tools in community-acquired or health care-associated pneumonia

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Body: Introduction: Severity assessment tools are a key component of health care strategies to improve the management of patients admitted to hospital with pneumonia. Aims and objectives: To compare the ability of the PSI, CURB and CURB-65 scales, and the SCAP score to predict in-hospital mortality and early clinical deterioration in patients with community-acquired (CAP) or health-care associated pneumonia (HCAP). Methods: The study population consisted of consecutive patients admitted for CAP or HCAP. Receiver operating characteristics (ROC) curve analysis was applied to assess the predictive role of PSI, CURB, CURB-65 and SCAP for early (within the first 72 hours) and total in-hospital mortality, and early clinical deterioration. Comparisons of the areas under (AUC) estimated ROC curves were performed. Results: Fifty three consecutive patients with CAP and 21 patients with HCAP were finally included. Comparison of AUCs revealed a significant difference in predictive performance for total in-hospital mortality (X2=11.74, p=0.008); the AUC for CURB-65 was significantly greater than PSI (0.814 vs 0.726, p=0.024). SCAP (AUC:0.858) seemed to better predict early clinical deterioration, than each other score (X2=10.75, p=0.013, SCAP vs PSI: p=0.029, SCAP vs CURB: p=0.014 and SCAP vs CURB-65: 0.033, in pairwise comparisons). Conclusions: The SCAP score is a better predictor of early clinical deterioration in patients admitted for CAP or HCAP, in comparison to PSI, CURB and CURB-65. CURB-65 has a better predictive performance for in-hospital mortality, when compared to the PSI score.