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Title: Simplifying IDSA/ATS pneumonia guidelines

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Body: Introduction The aim of this study was to determine if the 2007 IDSA/ATS minor criteria for severe community-acquired pneumonia (CAP) could be simplified by removing non-contributory variables. Methods The components of the minor criteria were validated using a systematic review and meta-analysis of 7 studies. Odds ratios were pooled using a random effects model. Variables that occurred in <5% of cases or that were not significantly associated with mortality/ICU admission in the pooled analysis were considered non-contributory. A simplified score excluding these variables was tested for prediction of mortality/ICU admission in a prospective observational study of CAP. Prediction was assessed using the area under the receiver operator characteristic curve(AUC). Results All variables were significantly associated with mortality and ICU admission but leukopaenia(<4000 cells/mm3), thrombocytopenia (<100,000 cells/mm3) and hypothermia <36°C occurred in <5% of pooled cases. A simplified score excluding these variables performed similarly for prediction of mortality AUC 0.77 95% CI 0.73-0.81 vs 0.78(0.74-0.82), p=0.9 and ICU admission AUC 0.85(0.82-0.87) vs 0.85(0.82-0.88), p=0.9 in the prospective cohort. Additional predictors suggested by the IDSA/ATS including hypo/hyperglycaemia, acidosis, liver cirrhosis, acute alcohol ingestion or alcohol withdrawal and asplenia were associated with mortality and ICU admission,but only incorporating pH<7.35 altered the AUC(0.82 95% CI 0.78-0.86 for mortality and 0.86 95% CI 0.82-0.88) for ICU admission). No improvements were statistically significant(p=0.5 and p=0.8 respectively). Conclusions The IDSA/ATS minor criteria can be simplified by removing 3 infrequent variables without affecting prognostic accuracy.