

Predicting Pneumonia in Acute Ischaemic Stroke: Comparison of Five Prediction Scoring Models

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Abstract

Introduction: Although pneumonia is a major complication after acute ischaemic stroke (AIS), pneumonia prediction scores have not been extensively validated. This study aimed to compare the discrimination performance of 5 pneumonia prediction scores in AIS patients. **Materials and Methods:** We retrospectively reviewed all consecutive adult AIS patients whom presented to our emergency department within 4.5 hours of symptom-onset between January 2012 and February 2015. Diagnosis had to be made by a neurologist and infarcts confirmed by neuroimaging. We excluded patients with pneumonia on presentation. Pneumonia predictors were based on the 5 prediction scoring models: Kwon's score, Chumbler's score, Acute Ischaemic Stroke-Associated Pneumonia Score (AIS-APS), A²DS² score and ISAN score. The definition of stroke-associated pneumonia was based on the criteria by the Pneumonia in Stroke Consensus Group. Analysis using area under receiver operating characteristics curve (AUROC) was performed. **Results:** Forty (5.5%) out of 731 patients analysed had stroke-associated pneumonia (SAP). A²DS² score had the highest discrimination capacity (AUROC 0.88; 95% CI, 0.84 to 0.92), followed by AIS-APS (AUROC 0.87; 95% CI, 0.83 to 0.91), Kwon's score (AUROC 0.86; 95% CI, 0.82 to 0.92), Prestroke Independence, Sex, Age and National Institutes of Health Stroke Scale (ISAN) score (AUROC 0.85; 95% CI, 0.80 to 0.90) and Chumbler's score (AUROC 0.79; 95% CI, 0.74 to 0.84). However, there was no statistical difference of discrimination capacity among A²DS² score, AIS-APS and Kwon's score. **Conclusion:** A²DS², AIS-APS and Kwon's scores performed comparably in discriminating SAP in AIS patients.

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