Stroke-associated pneumonia

Stroke-related pneumonia occurred in around one-third of acute stroke patients and is responsible for enhanced three-fold mortality within a month. It mainly manifested within 2 to 7 days after onset of illness. Stroke-associated pneumonia (SAP) leads to prolonged hospitalization, increased morbidity, delayed recovery, and difficulty in executing rehabilitative procedures. In majority of SAP, the causative factor was hospital-acquired infection. The dysphagia along with aspiration is a significant risk factor for SAP in stroke patients [1].

Scores

Different scores (A2DS2, AISAPS, ISAN) have been designed to predict the risk of in-hospital stroke-associated pneumonia (SAP). Studies have assessed the accuracy of these scores for predicting SAP. Ni et al. performed a meta-analysis to consolidate the evidence on the predictive accuracies for SAP of the A2DS2, AISAPS, and ISAN scores.

Ni et al. conducted a systematic search for all studies reporting the SAP predictive accuracy of A2DS2, AISAPS, or ISAN scores in the databases of PubMed Central, SCOPUS, MEDLINE, Embase, and Cochrane from inception until December 2020. They used the STATA software for the meta-analysis.

They included 19 studies with 35 849 patients. The pooled score sensitivities were 78% (95% CI, 71%-83%) for A2DS2, 79% (95% CI, 77%-81%) for AISAPS, and 79% (95% CI, 77%-81%) for ISAN. The pooled score specificities were 73% (95% CI, 65%-80%) for A2DS2, 74% (95% CI, 69%-79%) for AISAPS, and 74% (95% CI, 69%-79%) for ISAN. We found significant heterogeneity for all the scoring systems based on the chi-square test results and an I2 statistic > 75%. We performed meta-regression to explore the source of heterogeneity and found that patient selection ($p<0.05$) and reference standards ($p<0.05$) in the sensitivity model, index test standards ($p<0.05$), flow and timing of tests ($p<0.01$) in the specificity model, and mean age ($p<0.001$) in the joint model were the source of heterogeneity.

To summarize, they found that A2S2, AISAPS and ISAN have moderate predictive accuracy for SAP with A2S2 having a stable cut-off value [2].

1)
Katzan IL, Cebul RD, Husak SH, Dawson NV, Baker DW. The effect of pneumonia on mortality among patients hospitalized for acute stroke. Neurology. 2003 Feb 25;60(4):620-5. doi: 10.1212/01.wnl.0000046586.38284.60. PMID: 12601102.
2)
Ni J, Shou W, Wu X, Sun J. Prediction of stroke-associated pneumonia by the A2DS2, AIS-APS, and ISAN scores: a systematic review and meta-analysis. Expert Rev Respir Med. 2021 May 4. doi: 10.1080/17476348.2021.1923482. Epub ahead of print. PMID: 33945394.