Optimizing in-hospital triage for large vessel occlusion using a novel clinical scale (GAI$_2$AA)

Tsuyoshi Ohta, MD, PhD, Ichiro Nakahara, MD, PhD, Shoji Matsumoto, MD, PhD, et al.

Correspondence
Dr. Ohta
tsuyoshi@ya2.so-net.ne.jp

Study objective and summary result

This study aimed to develop and validate a simple diagnostic scale for predicting proximal anterior circulation occlusions; the result was a highly sensitive and specific tool called the GAI$_2$AA scale.

What is known and what this paper adds

Rapid recognition of proximal anterior circulation occlusions is critical for the timely initiation of mechanical thrombectomy. The present study reports the development of a valid and potentially useful scale for detecting occlusions.

Participants and setting

The investigators analyzed data from distinct groups of acute ischemic stroke patients who were admitted to Japanese hospitals ≤4.5 hours after stroke onset. The derivation cohort comprised 429 patients who were treated at a center in Kochi between September 2012 and February 2017. The validation cohort comprised 259 patients who were treated at centers in Kochi, Aichi, and Fukuoka between March 2017 and February 2018.

Design, size, and duration

Proximal anterior circulation occlusions were detected with magnetic resonance angiography, CT angiography, or cerebral angiography performed ≤6 hours after stroke onset. The investigators used multivariable logistic regression analysis to retrospectively identify variables associated with occlusions in the derivation cohort. They then used receiver operating characteristic (ROC) analysis to set appropriate thresholds. The novel scale was then prospectively applied to the validation cohort, with scores being calculated before vascular imaging.

Main results and the role of chance

Occlusions were detected in 144 derivation cohort members (33.6%) and 100 validation cohort members (38.6%). The investigators developed the GAI$_2$AA scale, on which 2 points are assigned for the presence of gaze palsy, aphasia, or

Figure ROC curves for the GAI$_2$AA scale in the (A) derivation and (B) validation cohorts
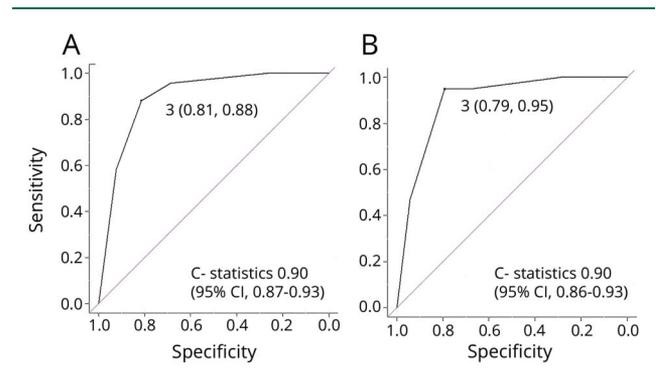
inattention; 1 point is assigned for the presence of arm paresis; and 1 point is assigned for the presence of atrial fibrillation. A cut-off score of 3 identified patients with occlusions with 91% sensitivity and 81% specificity.

Bias, confounding, and other reasons for caution

The study cohorts included elderly and functionally dependent patients who may not benefit from mechanical thrombectomy.

Generalizability to other populations

The present study's reliance on data from a few Japanese centers may limit the generalizability of the results.

Study funding/potential competing interests

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