

Validity of the NIHSS in predicting arterial occlusion in cerebral infarction is time-dependent

Olavarria, V. V.; Delgado, I.; Hoppe, A.; Brunser, A.; Carcamo, D.; Diaz-Tapia, V.; Lavados, P. M.

NEUROLOGY

vol.76, n° 1, p. 62-68

DOI: 10.1212/WNL.0b013e318203e977

Published: JAN 4 2011

Abstract

Background: The NIH Stroke Scale (NIHSS) is used to assess acute ischemic stroke severity and outcome. High NIHSS scores are usually associated with arterial occlusion but it is unknown what the effect of time to clinical evaluation (TTCE) in this association is. We tested the NIHSS scores as an instrument to determine vessel occlusion (VO) at different time points from symptom onset.

Methods: Patients were selected from our prospective stroke database if they had admission NIHSS scores and intracranial vessel neuroimaging studies. We dichotomized patients according to VO and TTCE. Receiver operating curves, c statistics, and odds ratios were calculated to study the validity of the NIHSS score.

Results: Among 463 patients (mean age 70.2 years, 53.1% male, median NIHSS 4, median TTCE 3.3 hours), 22.5% had arterial occlusion. Median NIHSS scores were higher in patients with VO, 10.5 (interquartile range 5-18) vs 3 (2-7), $p < 0.001$, and in those with TTCE < 6 hours, 15 (interquartile range 7-19) vs 4 (2-8) if ≥ 6 hours, $p < 0.001$. Receiver operating characteristic curves showed that the validity of NIHSS in predicting VO was higher in patients with TTCE < 6 hours, $p = 0.03$. The best cutoff point in patients evaluated before 6 hours was an NIHSS of 7 (76.2% sensitivity, specificity 70.1%), while in patients evaluated after 6 hours the best cutoff point was 4 (sensitivity 65.4%, specificity 62.0%).

Conclusions: Our study shows that the validity of NIHSS scores in predicting arterial occlusion is time-dependent, decreasing with increasing time from symptom onset to clinical evaluation.

Neurology (R) 2011; 76:62-68

Keywords

KeyWords Plus: ACUTE ISCHEMIC-STROKE; VESSEL INTRACRANIAL OCCLUSION; TISSUE-PLASMINOGEN ACTIVATOR; SCALE SCORE; CT ANGIOGRAPHY; ACCURACY; IMPACT; TRIAL; RECANALIZATION; MANAGEMENT

