IER-START nomogram for prediction of three-month unfavorable outcome after thrombectomy for stroke

This is the author's manuscript

Original Citation:

Availability:
This version is available  http://hdl.handle.net/2318/1732000  since  2020-02-27T19:05:32Z

Published version:
DOI:10.1177/1747493019837756

Terms of use:
Open Access
Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)
Abstract

Background

The applicability of the current models for predicting functional outcome after thrombectomy in strokes with large vessel occlusion (LVO) is affected by a moderate predictive performance.

Aims

We aimed to develop and validate a nomogram with pre- and post-treatment factors for prediction of the probability of unfavorable outcome in patients with anterior and posterior LVO who received bridging therapy or direct thrombectomy <6 h of stroke onset.

Methods

We conducted a cohort study on patients data collected prospectively in the Italian Endovascular Registry (IER). Unfavorable outcome was defined as three-month modified Rankin Scale (mRS) score 3–6. Six predictors, including NIH Stroke Scale (NIHSS) score, age, pre-stroke mRS score, bridging therapy or direct thrombectomy, grade of recanalization according to the thrombolysis in cerebral ischemia (TICI) grading system, and onset-to-end procedure time were identified a priori by three stroke experts. To generate the IER-START, the pre-established predictors were entered into a logistic regression model. The discriminative performance of the model was assessed by using the area under the receiver operating characteristic curve (AUC-ROC).

Results

A total of 1802 patients with complete data for generating the IER-START was randomly dichotomized into training (n = 1219) and test (n = 583) sets. The AUC-ROC of IER-START was 0.838 (95% confidence interval [CI]): 0.816–0.869) in the training set, and 0.820 (95% CI: 0.786–0.854) in the test set.

Conclusions

The IER-START nomogram is the first prognostic model developed and validated in the largest population of stroke patients currently candidates to thrombectomy which reliably calculates the probability of three-month unfavorable outcome.