

## Prediction of Outcome after Endovascular Thrombectomy for Anterior and Posterior Ischemic Stroke: ASPECTS on CT

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**Abstract :** Background: Endovascular Therapy (EVT)—in the form of mechanical thrombectomy—following intravenous thrombolysis is the standard gold treatment for patients with acute ischemic stroke (AIS) due to large vessel occlusion (LVO). It is well established that an ASPECTS  $\geq 7$  is associated with an increased likelihood of positive post-EVT outcomes, as compared to an ASPECTS  $< 7$ . There is also prognostic utility in coupling posterior circulation ASPECTS (pc-ASPECTS) with magnetic resonance imaging for evaluating the post-EVT functional outcome. However, the value of pc-ASPECTS applied to CT must be explored further to determine its usefulness in predicting functional outcomes following EVT. Objective: In this study, we aimed to determine whether pc-ASPECTS on CT can predict post-EVT functional outcomes among patients with AIS due to LVO. Methods: A total of 247 consecutive patients aged 18 and over receiving EVT for LVO-related AIS were recruited into a prospective database. The data were retrospectively analyzed between March 2019 to February 2022 from two comprehensive tertiary care stroke centers: Foshan Sanshui District People's Hospital and First People's Hospital of Foshan in China. Patient parameters included EVT within 24hrs of symptom onset, pre-morbid modified Rankin Scale (mRS)  $\leq 2$ , presence of distal and terminal cerebral blood vessel occlusion, and subsequent 24-72-hour post-stroke onset CT scan. Univariate comparisons were performed using the Fisher exact test or  $\chi^2$  test for categorical variables and the Mann-Whitney U test for continuous variables. A p-value of  $\leq 0.05$  was statistically significant. Results: A total of 247 patients met the inclusion criteria; however, 3 were excluded due to the absence of post-CTs and 8 for pre-EVT ASPECTS  $< 7$ . Overall, 236 individuals were examined: 196 anterior circulation ischemic strokes and 40 posterior strokes of basilar artery occlusion. We found that both baseline post- and pc-ASPECTS  $\geq 7$  serve as strong positive markers of favorable outcomes at 90 days post-EVT. Moreover, lower rates of inpatient mortality/hospice discharge, 90-day mortality, and 90-day poor outcome were observed. Moreover, patients in the post-ASPECTS  $\geq 7$  anterior circulation group had shorter door-to-recanalization time (DRT), puncture-to-recanalization time (PRT), and last known normal-to-puncture-time (LKNPT). Conclusion: Patients of anterior and posterior circulation ischemic strokes with baseline post- and pc-ASPECTS  $\geq 7$  may benefit from EVT.

**Keywords :** endovascular therapy, thrombectomy, large vessel occlusion, cerebral ischemic stroke, ASPECTS

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