

Middle cerebral artery M2 segment occlusion

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Systematic reviews and meta-analysis

In a pooled, patient-level analysis of 3 randomized controlled trials (EXTEND-IA, EXTEND-IA-TNK part 1&2) and 2 prospective non-randomized studies (INSPIRE&SELECT), Sarraj et al. evaluated [Endovascular thrombectomy](#) (EVT) association with 90-day functional independence (mRS 0-2) in isolated M2 occlusions as compared to medical management overall and in subgroups by mismatch profile status and stroke severity.

Sarraj et al. included 517 patients (EVT=195, MM=322), baseline median (IQR) NIHSS was 13 (8-19) in EVT vs 10 (6-15) in MM, $p < 0.001$. Pre-treatment ischemic core did not differ (EVT=10 (0-24) mL vs MM=9 (3-21) mL, $p = 0.59$). Compared to MM, EVT was more frequently associated with functional independence (68.3% vs 61.6%, $aOR = 2.42$, 95%CI=1.25-4.67, $p = 0.008$, IPTW-OR=1.75, 95%CI=1.00-3.75, $p = 0.05$) with a shift towards better mRS outcomes (adjusted $cOR = 2.02$, 95%CI:1.23-3.29, $p = 0.005$), and lower mortality (5% vs 10%, $aOR = 0.32$, 95%CI=0.12-0.87, $p = 0.025$). EVT was associated with higher functional independence in patients with a perfusion mismatch profile (EVT=70.7% vs MM=61.3%, $aOR = 2.29$, 95%CI=1.09-4.79, $p = 0.029$, IPTW-OR=2.02, 1.08-3.78, $p = 0.029$), whereas no difference was found in those without mismatch (EVT=43.8% vs MM=62.7%, $p = 0.17$, IPTW-OR: 0.71, 95%CI=0.18-2.78, $p = 0.62$). Functional independence was more frequent with EVT in patients with moderate or severe strokes, as defined by baseline NIHSS above any thresholds from 6-10, whereas there was no difference between groups with milder strokes below these thresholds.

Interpretation: In patients with M2 occlusion, EVT was associated with improved clinical outcomes

when compared to medical management. This association was primarily observed in patients with a mismatch profile and those with higher stroke severity ¹⁾.

Findakly et al. conducted a systematic review and meta-analysis of the available literature that included patients with M2 MCA occlusions who underwent ECR. Successful reperfusion was defined as a treatment in cerebral ischaemia score of 2b-3. Good outcome was defined as a modified Rankin Scale score ≤ 2 . We also analysed complications such as post-procedure symptomatic intracranial haemorrhage and mortality at 3 months.

Fifteen studies including 1105 patients with isolated M2 occlusions were analysed. Successful reperfusion occurred in 75.4% (95% confidence interval (CI) 67.7-84.1%) of patients; good outcome was observed in 58.3% (95% CI 51.7-63.8%) of patients. The rate of symptomatic intracranial haemorrhage was 5.1% (95% CI 4.2-8.3%), and 3-month mortality rate was 12.2% (95% CI 10.4-16.3%).

The outcomes of ECR treatment of M2 occlusions are favourable, with good safety profile. Comparison to medical management from large registries or randomised controlled trials is warranted ²⁾

Miura et al., compared the efficacy of endovascular therapy (EVT) with that of medical treatment in 'real-world' patients with M2 occlusion.

This was a post hoc analysis of the Recovery by Endovascular Salvage for Cerebral Ultra-acute Embolism Japan Registry 2. Among 2420 patients in the registry, we evaluated patients with isolated M2 occlusion and those with functional independence before the stroke. Multivariable logistic regression analysis was used to evaluate and compare clinical outcomes between EVT and medical treatment. Additional propensity score-matched (PSM) analyses were performed. We performed subgroup analyses of the primary outcome (modified Rankin Scale score 0-2 at 90 days) using forest plots of treatment effects.

Overall, 372 patients with M2 occlusion (n=184 EVT; n=188, medical treatment) were evaluated. The EVT group had a higher baseline National Institutes of Health Stroke Scale score (median (IQR), 15 [9-19] vs 10 [5-16]) and earlier onset to hospital door time (110 [50-258] vs 150 [60-343] min) than the medical treatment group. After adjustment, EVT was significantly associated with higher odds of primary outcome (adjusted OR=2.09; 95% CI 1.26 to 3.47) and lower odds of mortality at 90 days (adjusted OR= 0.27; 95% CI 0.08 to 0.93). After PSM analyses (184 patients were 1:1 matched with each group), EVT was effective and safe relative to medical treatment. Effects favoring EVT were present in several subgroups of interest.

In patients with M2 occlusion, this registry suggests that EVT is effective and safe ³⁾.

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