SAINT Study

The SAINT (Stenting and Angioplasty in Neurothrombectomy) Study is a retrospective analysis of prospectively collected data from 14 comprehensive stroke centers from January 2015 to December 2020. Patients were included if they had anterior circulation acute large vessel occlusion stroke due to intracranial internal carotid artery and middle cerebral artery-M1/M2 segments and failed MT. The cohort was divided into 2 groups: rescue intracranial stenting and failed recanalization (modified Thrombolysis in Cerebral Ischemia score 0-1). Propensity score matching was used to balance the 2 groups. The primary outcome was the shift in the degree of disability as measured by the modified Rankin Scale at 90 days. Secondary outcomes included functional independence (90-day modified Rankin Scale score 0-2). Safety measures included symptomatic intracranial hemorrhage and 90-day mortality.

Results: A total of 499 patients were included in the analysis. Compared with the failed reperfusion group, rescue intracranial stenting had a favorable shift in the overall modified Rankin Scale score distribution (acOR, 2.31 [95% CI, 1.61-3.32]; P<0.001), higher rates of functional independence (35.1% versus 7%; adjusted odds ratio [aOR], 6.33 [95% CI, 3.14-12.76]; P<0.001), and lower mortality (28% versus 46.5%; aOR, 0.55 [95% CI, 0.31-0.96]; P=0.04) at 90 days. Rates of symptomatic intracerebral hemorrhage were comparable across both groups (7.1% versus 10.2%; aOR, 0.99 [95% CI, 0.42-2.34]; P=0.98). The matched cohort analysis demonstrated similar results. Specifically, rescue intracranial stenting (n=107) had a favorable shift in the overall modified Rankin Scale score distribution (acOR, 3.74 [95% CI, 2.16-6.57]; P<0.001), higher rates of functional independence (34.6% versus 6.5%; aOR, 10.91 [95% CI, 4.11-28.92]; P<0.001), and lower mortality (29.9% versus 43%; aOR, 0.49 [95% CI, 0.25-0.94]; P=0.03) at 90 days with similar rates of symptomatic intracerebral hemorrhage (7.5% versus 11.2%; aOR, 0.87 [95% CI, 0.31-2.42]; P=0.79) compared with patients who failed to reperfuse (n=107). There was no heterogeneity of treatment effect across the prespecified subgroups for improvement in functional outcomes.

Conclusions: Acute intracranial stenting appears to be a safe and effective rescue strategy in patients with large vessel occlusion stroke who failed MT. Randomized multicenter trials are warranted [1]

There is little data available to guide optimal anesthesia management during rescue intracranial angioplasty and stenting (ICAS) for failed mechanical thrombectomy (MT). Mohammaden et al. sought to compare the procedural safety and functional outcomes of patients undergoing rescue ICAS for failed MT under general anesthesia (GA) vs non-general anesthesia (non-GA).

They searched the data from the Stenting and Angioplasty In Neuro Thrombectomy (SAINT study). In the review, they included patients who had anterior circulation large vessel occlusion strokes due to the intracranial internal carotid artery (ICA) or middle cerebral artery (MCA-M1/M2) segments, failed MT, and underwent rescue ICAS. The cohort was divided into two groups: GA and non-GA. We used propensity score matching to balance the two groups. The primary outcome was the shift in the degree of disability as measured by the modified Rankin Scale (mRS) at 90 days. Secondary outcomes included functional independence (90-day mRS0-2) and successful reperfusion defined as mTICI2B-3. Safety measures included symptomatic intracranial hemorrhage (sICH) and 90-day mortality.

Among 253 patients who underwent rescue ICAS, 156 qualified for the matching analysis at a 1:1 ratio. Baseline demographic and clinical characteristics were balanced between both groups. Non-GA patients had comparable outcomes to GA patients both in terms of the overall degree of disability

(mRS ordinal shift; adjusted common odds ratio 1.29, 95% CI [0.69 to 2.43], P=0.43) and rates of functional independence (33.3% vs 28.6%, adjusted odds ratio 1.32, 95% CI [0.51 to 3.41], P=0.56) at 90 days. Likewise, there were no significant differences in rates of successful reperfusion, sICH, procedural complications, or 90-day mortality among both groups.

Non-GA seems to be a safe and effective anesthesia strategy for patients undergoing rescue ICAS after failed MT. Larger prospective studies are warranted for more concrete evidence [2]

[1)]

Mohammaden MH, Haussen DC, Al-Bayati AR, Hassan A, Tekle W, Fifi J, Matsoukas S, Kuybu O, Gross BA, Lang MJ, Narayanan S, Cortez GM, Hanel RA, Aghaebrahim A, Sauvageau E, Farooqui M, Ortega-Gutierrez S, Zevallos C, Galecio-Castillo M, Sheth SA, Nahhas M, Salazar-Marioni S, Nguyen TN, Abdalkader M, Klein P, Hafeez M, Kan P, Tanweer O, Khaldi A, Li H, Jumaa M, Zaidi S, Oliver M, Salem MM, Burkhardt JK, Pukenas BA, Alaraj A, Peng S, Kumar R, Lai M, Siegler J, Nogueira RG. Stenting and Angioplasty in Neurothrombectomy: Matched Analysis of Rescue Intracranial Stenting Versus Failed Thrombectomy. Stroke. 2022 Sep;53(9):2779-2788. doi: 10.1161/STROKEAHA.121.038248. Epub 2022 Jun 30. PMID: 35770672.

[2)]

Mohammaden MH, Haussen DC, Al-Bayati AR, Hassan AE, Tekle W, Fifi JT, Matsoukas S, Kuybu O, Gross BA, Lang M, Narayanan S, Cortez GM, Hanel RA, Aghaebrahim A, Sauvageau E, Farooqui M, Ortega-Gutierrez S, Zevallos CB, Galecio-Castillo M, Sheth SA, Nahhas M, Salazar-Marioni S, Nguyen TN, Abdalkader M, Klein P, Hafeez M, Kan P, Tanweer O, Khaldi A, Li H, Jumaa M, Zaidi SF, Oliver M, Salem M, Burkhardt JK, Pukenas B, Kumar R, Lai M, Siegler JE, Peng S, Alaraj A, Nogueira RG. General anesthesia vs procedural sedation for failed NeuroThrombectomy undergoing rescue stenting: intention to treat analysis. J Neurointerv Surg. 2022 Dec 8:jnis-2022-019376. doi: 10.1136/jnis-2022-019376. Epub ahead of print. PMID: 36597943.

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