modality of treatment. Those treated with mechanical thrombectomy with or without bridging IV-tPA composed the MT group. Patients treated with medical therapy alone with or without IV-tPA composed the standard medical treatment (SMT) group.

Results A total of 7 articles were included in final analysis. Only 2 studies had comparable data between MT and SMT. A total of 150 patients were treated with MT and 213 with SMT. Patients treated with MT had significantly lower mean age (MT, 70.7 years vs SMT, 73.5 years; $P=0.0007$), higher mean/median NIHSS at presentation (MT, 7.4 vs SMT, 6.6; $P=0.017$) and longer time from onset of symptoms to treatment (MT, 230.3 minutes vs SMT, 154.1 minutes; $P<0.0001$). Intravenous alteplase was given to 45.3% of patients treated with MT and 53.1% of patients treated with SMT ($P=0.152$). The MT group was associated with a significantly higher rate of patients with occluded P1 segment (MT, 25.4% vs SMT, 14.5%; $P=0.012$) and significantly lower rate of patients with occluded P2 segment (MT, 63.3% vs SMT, 75.8%; $P=0.012$), while the rate of patients with occluded P3 segment did not differ between the two groups (MT, 11.3% vs SMT, 10.2%; $P=0.741$). The rate of good outcome was significantly higher in patients treated with MT than in those treated with SMT (MT, 68.5% vs SMT, 55.3%; $P=0.014$). There was no significant difference in the rates of sICH (MT, 3.9% vs SMT, 3%, $P=0.568$) and mortality (MT, 11.8% vs SMT, 12.4%, $P=0.891$). Good outcome significantly favored MT (OR, 1.78; 95% CI, 1.11 – 2.85), while sICH and mortality did not favor any modality.

Conclusions Our systematic review demonstrated the scarcity of available studies focusing on aPCAO in literature and complete absence of prospective comparison between MT and medical therapy alone. Our pooled analysis comparing treatment modalities demonstrated better odds of good outcome in patients treated with MT in comparison to SMT, while there was no difference in sICH and mortality. However, significant differences in the characteristics of patients among the treatment groups, such as age, NIHSS, occluded segment of the PCA and time from onset of symptoms to treatment, highlight the need of further studies with comparable data.

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E-134

BRAIN ATROPHY AND OUTCOMES OF MECHANICAL THROMBECTOMY: A SYSTEMATIC REVIEW

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Introduction Mechanical thrombectomy (MT) for large vessel occlusion results in improved outcomes. The presence of brain atrophy may affect the outcomes of patients treated with MT given that it is an indicator of low brain reserve. We performed a systematic review of the available literature to assess whether brain atrophy is an indicator of poor outcomes in patients with acute ischemic stroke undergoing treatment with MT.

Methods We conducted a comprehensive systematic search of Pubmed, MEDLINE, EMBASE and Cochrane Library databases using keywords with Boolean operators in different combinations to increase search sensitivity and specificity (“brain atrophy”; “atrophy”; “white matter”; “thrombectomy”), following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

Results Four articles were included. Methods used to assess brain atrophy were Brain Atrophy Index (BAI), automated measurement of CSF volume, Global Cortical Atrophy scale (GCA) and Standards for Reporting Vascular changes on Neuroimaging (STRIVE) criteria. BAI was a predictor of mortality (1.81 to 1.87, 95%CI 1.16-1.87) after adjustments for age and white matter lesions. GCA remained as predictor of futile recanalization (1.155, 95%CI 1.085-1.229) after adjustments for post-operative symptomatic intracranial hemorrhage. Adjustments for baseline mRS, prior stroke and posterior circulation did not significantly change the associations between CSF volume and worse outcomes (1.23, 95%CI 0.83-1.84). The confounders used in adjusted ORs for brain atrophy according to STRIVE criteria were not reported, but the associations with unfavorable outcome remained similar (2.72, 95%CI 1.25–5.91).

Conclusions The few studies available highlight the heterogeneity of imaging methodology when assessing brain atrophy and the difficulty in addressing the multiple confounders involved in the outcomes of these patients. More consistent and accurate investigation is needed before posing brain atrophy as a possible parameter to improve patient selection for MT.

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E-135

ENDOVASCULAR TREATMENT OF ACUTE EXTRACRANIAL INTERNAL CAROTID ARTERY STROKE – SYSTEMATIC REVIEW AND POOLED ANALYSIS OF DATA FROM THE LAST DECADE

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Introduction Ischemic stroke secondary to acute extracranial internal carotid artery (EC-ICA) occlusion accounts for approximately 20% of all stroke cases. Pure EC-ICA lesions account for only a minority of cases as a larger subgroup of people who experience these occlusions, concomitantly develop an intracranial anterior circulation large vessel occlusion (ACLVO), i.e. a tandem lesions. Endovascular management includes acute carotid artery stenting (CAS) with or without balloon angioplasty for pure EC-ICA occlusions and concurrent mechanical thrombectomy (MT) for tandem lesions. In lieu of the scarcity of randomized data and abundance of observational studies, we intend to perform a systematic review and pooled analysis of the data over the past decade to evaluate clinical outcomes, safety and feasibility of endovascular management of acute EC-ICA strokes.

Methods Systematic search of the Pubmed, MEDLINE, and EMBASE databases was conducted based on Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) guidelines. We performed a systematic review of all acute EC-ICA stroke papers (including tandem lesions) published between January 2010 and December 2020. A pooled analysis of the extracted data was performed.

Results Data from 1153 patients from 22 studies were pooled and analyzed. Mean age after pooling was 66.9 years, mean NIHSS at admission was 15.9, % IV tPA use before endovascular intervention was seen 56.1% of studies. 82.8% of subjects had a tandem lesion involving both Extracranial and intracranial part of ICA and only 17.2% had a pure and isolated EC-ICA lesion. Angioplasty + stenting (both) was done in 77.6% of cases. Pooling was also done for any and all approaches taken in case of a tandem lesion i.e. antegrade or retrograde. Antegrade approach was taken in 61.7% of cases whereby CAS was performed first followed by MT. Outcome measures were reported as successful recanalization (TICI $\geq$ 2B) in 80.0% of cases, with good outcome (90-day mRS $<$ 2) in 49.6% and a mortality rate of 12.9%.

Conclusion Our systematic review for endovascular treatment of EC-ICA strokes found a high rate of good outcomes and an impressive rate for recanalization, with low mortality rates. Since these results are from observational, retrospective studies, more rigorous randomized trials are required to establish the best approach.

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E-136 EFFECT OF INFRACED BRAIN AREA FRAGMENTATION ON PATIENT OUTCOME

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Purpose Stroke is the 5th leading cause of death in the US. 87% of strokes are ischemic in nature caused by large vessel occlusion. It is established in the literature that the infarct volume directly relates to patient's outcome. We aim to study the effect of fragmentation of the total infarct volume on DWI on patient outcome.

Materials and Methods Data was collected as part of the Blood And Clot Thrombectomy Registry And Collaboration (BACTRAC) protocol. DWI sequences were integrated into ITK-SNAP software where areas of infarction were manually segmented to measure infarction volume and distribution. Demographic and outcome data were extracted from the BACTRAC database.

Results A total of 66 individuals were included in the analysis. The median NIHSS score at discharge was 7.0 and the median mRS score at discharge was 4.0. When adjusting for infarcted brain volume, number of infarcted areas didn't have a statistically significant effect on NIHSS and mRS scores at discharge. (P= 0.681 and 0.475 respectively).

Conclusion Infarcted brain volume on DWI is the main imaging predictor of patients' outcome regardless of number of fragments contributing to the total volume.

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E-137 ENDOVASCULAR COIL OCCLUSION OF ARTERIOVENOUS FISTULA: A CASE REPORT

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Objectives The aim was to provide a method of closing high-flow the vertebral arteriovenous fistulas (VAVF) and