Intracranial Aneurysm treatment

- Animal model of a bovine pericardial patch for thoracoabdominal aortic aneurysms: step by step
- Rothia Aeria Bacteremia Complicated by Cerebral Mycotic Aneurysms: A Case Report
- The safety and efficacy of complete preservation of internal iliac arteries in patients with aortoiliac aneurysms using iliac branch stent grafts: A multicenter retrospective comparative study
- The Impact of Celiprolol in Vascular Ehlers-Danlos Syndrome: A Systematic Review of Current Evidence
- The role of senescence-related hub genes correlating with immune infiltration in type A aortic dissection: Novel insights based on bioinformatic analysis
- Glycemic variability and mortality in patients with aortic diseases: A multicenter retrospective cohort study
- Emergency Department Blood Pressure Management in Type B Aortic Dissection: An Analysis with Machine Learning
- Delayed cerebral ischemia after aneurysmal subarachnoid hemorrhage: a narrative review

Regarding intracranial aneurysm treatment, the clip versus coil debate remains inconclusive and lacking studies in Brazil. To examine trends in the management of intracranial aneurysms in Brazil over time, both ruptured and unruptured.

A descriptive and exploratory study was conducted based on data of neurovascular procedures for aneurysm treatment using the Brazilian Public Health System database. The variables analyzed were the number of procedures, mortality rates, length of hospital stays, and global costs of hospitalization, from 2010 to 2019.

Temporal trend analysis and statistical comparisons were conducted to assess changes over time and differences between the treatment options. The mean annual number of aneurysm treatments with endovascular embolization was 2206.30 (± 309.5), with a non-significant increasing trend (B = 55.66; p = 0.104). Conversely, microsurgical clipping exhibited a significant decreasing trend (B = -69.97; p < 0.001) with a mean of 1133.1 (± 223.12) procedures. The mortality rate associated with clipping procedure was higher in the period, with a mean difference of 5.23 (± 0.39); ([CI95%: 4.36; 6.10]; p < 0.001) and showed an increase trend, while embolization showed a stable trend. The length of in-hospital stay remained stable for clipping but increased for embolization. Costs associated with clipping increased over time, whereas costs for embolization decreased. This study highlights a significant shift in the treatment of aneurysm towards Endovascular Embolization. Despite higher costs, endovascular procedures were associated with lower mortality rates and shorter hospital stays. These findings provide valuable insights into aneurysm treatment patterns and indicators in a middle-income country's Public Health System [1)].

Systematic review and meta-analysis

- Flow diverter with or without adjunctive coils in the treatment of large and giant intracranial aneurysms: a meta-analysis
- Safety and efficacy of the Woven EndoBridge (WEB) device in ruptured intracranial aneurysms: a systematic review and updated meta-analysis

- Endovascular or microsurgical? Defining the best approach for blood blister aneurysms: A comparative meta-analysis
- Rapid ventricular pacing in cerebral aneurysm clipping: institutional workflow, systematic review, and single-arm meta-analysis
- Technical Success and Clinical Outcomes of the Low-Profile Visualized Intraluminal Support EVO (LVIS EVO) Stent in the Treatment of Intracranial Aneurysms: A Systematic Review and Meta-Analysis
- Comparison between pipeline embolization device (PED) versus flow redirection endoluminal device (FRED) for intracranial aneurysms: a comprehensive systematic review and meta-analysis
- Machine Learning-Based Rupture Risk Prediction for Intracranial Aneurysms: A Systematic Review and Meta-Analysis
- Setting benchmark for ischemic stroke treated endovascularly: a systematic review and meta-analysis

Volovici et al. reviewed and analyzed studies investigating devices and procedures used in intracranial aneurysm (IA) treatment for methods and completeness of reporting and to compare the results of studies with positive, uncertain, and negative conclusions.

Embase, MEDLINE, Web of Science, and The Cochrane Central Register of Clinical Trials were searched for studies on IA treatment published between January 1, 1995, and October 1, 2022. Grey literature was retrieved from Google Scholar.

All studies making any kind of claims of safety, effectiveness, or durability in the field of IA treatment were included.

Data extraction and synthesis: Using a predefined data dictionary and analysis plan, variables ranging from patient and aneurysm characteristics to the results of treatment were extracted, as were details pertaining to study methods and completeness of reporting. Extraction was performed by 10 independent reviewers. A blinded academic neuro-linguist without involvement in IA research evaluated the conclusion of each study as either positive, uncertain, or negative. The study followed Preferring Reporting Items for Systematic Reviews and Meta-Analyses guidelines.

Main outcomes and measures: The incidence of domain-specific outcomes between studies with positive, uncertain, or hostile conclusions regarding safety, effectiveness, or durability were compared. The number of studies that provided a definition of safety, effectiveness, or durability and the incidence of incomplete reporting of domain-specific outcomes were evaluated.

Overall, 12 954 studies were screened, and 1356 studies were included, comprising a total of 410 993 treated patients. There was no difference in the proportion of patients with poor outcomes or in-hospital mortality between studies claiming a technique was safe, uncertain, or not safe. Similarly, there was no difference in the proportion of IAs completely occluded at the last follow-up between studies claiming a technique was effective, uncertain, or ineffective. Less than 2% of studies provided any definition of safety, effectiveness, or durability, and only 1 of the 1356 studies provided a threshold under which the technique would be considered unsafe. Incomplete reporting was found in 546 reports (40%).

Conclusions and Relevance: In this systematic review and meta-analysis of IA treatment literature, studies claiming safety, effectiveness, or durability of IA treatment had methodological flaws and incomplete reporting of relevant outcomes supporting these claims [2].

Unruptured intracranial aneurysm treatment

see Unruptured intracranial aneurysm treatment.

Ruptured intracranial aneurysm treatment

see Ruptured intracranial aneurysm treatment.

The treatment of intracranial aneurysm aims for the complete elimination of the aneurysm from the circulation with neuroendovascular treatment or surgery.

The efficacy of intracranial aneurysm treatment (long-term success or effectiveness of the treatment) is measured by evidence of the aneurysm obliteration (failure to be demonstrated by conventional or noninvasive angiography), without evidence of aneurysm recanalization (any blood flow into the aneurysm) or aneurysm recurrence (reappearance).

Intracranial Aneurysms (IA) can be treated with microsurgery or by endovascular treatments (EVT). EVT has taken an increasingly important part in IA management; the ability of neurosurgical teams to perform such surgery as well as the quality of their training is being questioned.

The decision-making process and patient selection for ruptured aneurysms treatment has evolved more as an art than as a science, which is a consequence of the collaborative efforts occurring between all subspecialties involved, the availability of both techniques on a 24–48-h window of treatment, the anatomical factors of the aneurysm neck and sac, as well as local expertise and morbidity factors involved with both options of treatment.

Management of these patients depends upon a number of factors including aneurysmal, patient, institutional, and operator factors. The ultimate goal of treating patients with IAs is complete and permanent occlusion of the aneurysm sac in order to eliminate future hemorrhagic risk, while preserving or restoring the patient's neurological function. The most common treatment approaches include microsurgical clipping and endovascular coiling, and multiple studies have compared these two techniques. To date, three large prospective, randomized studies have been done: a study from Finland, International Subarachnoid Aneurysm Trial (ISAT), and the Barrow Ruptured Aneurysm Trial (BRAT). Despite differences in methodology, the results were similar: in patients undergoing coiling, although rates of rebleeding and retreatment are higher, the overall rate of poor outcomes at 12 months was significantly lower. As minimally invasive procedures and devices continue to be refined, endovascular strategies are likely to increase in popularity. However, as long-term outcome studies become available, it is increasingly apparent that they are complementary treatment strategies, with patient selection of critical importance [3)].

Although each of these trials was not methodologically flawless, the combined results from all three suggest that endovascular treatment of ruptured aneurysms suitable for this treatment strategy

results in quicker recovery and better functional outcomes at one year at the expenses of lower rates of complete aneurysm obliteration frequently requiring retreatment [4].

The treatment of intracranial aneurysms is best performed at high volume centers that utilize a multidisciplinary, team-based approach [5].

In a trained team, the multidisciplinary approach appears to be a valuable strategy in the management of intracranial aneurysms, to achieve good functional outcomes [6].

Given the similar clinical results of both modalities, the patient should be advised on the necessity of repeated follow-ups and of possible technical failure and eventually repeated procedure which is more likely if an endovascular procedure is chosen [7].

Surgery

Intracranial aneurysm surgery.

Intracranial aneurysm embolization

Intracranial aneurysm embolization.

Intracranial Aneurysm Flow Diversion

Intracranial Aneurysm Flow Diversion.

Intracranial Aneurysm treatment complications

Intracranial Aneurysm treatment complications

Guidelines

European Stroke Organization Guidelines for the Management of Intracranial Aneurysms and Subarachnoid Haemorrhage – February 2013

http://www.karger.com/Article/FullText/346087

Outcome

Intracranial Aneurysm Treatment Outcome.

Intracranial aneurysm treatment in France

Intracranial aneurysm treatment in France.

1)
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