Unruptured intracranial aneurysm treatment

- Flow diversion for treatment of acutely ruptured intracranial aneurysms: Comparison of complications and clinical outcomes with coil embolization
- Endovascular treatment of posterior circulation aneurysms with flow diverters with hydrophilic polymer coating in patients receiving prasugrel single antiplatelet therapy: a multicenter case series presenting complication and occlusion rates
- Association between body mass index and intracranial procedural complications in patients undergoing endovascular treatment for unruptured aneurysms
- FloWise Flow Diverter for Treatment of Unruptured Wide-Neck Intracranial Aneurysms: A Prospective, Multicenter, Single-Arm, Open-Label, Pivotal Study
- DWI-based deep learning radiomics nomogram for predicting the impaired quality of life in patients with unruptured intracranial aneurysm developing new iatrogenic cerebral infarcts following stent placement: a multicenter cohort study
- Minimizing human-induced variability in quantitative angiography for a robust and explainable AI-based occlusion prediction in flow diverter-treated aneurysms
- Efficacy and performance of the new pipeline vantage flow diverter stent with shield technology: Short-term results of a single-center experience
- The United Kingdom's largest experience with Contour in the treatment of wide-neck intracranial aneurysms with long-term (2-year) follow-up

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The unruptured intracranial aneurysm treatment depends on the unruptured intracranial aneurysm natural history-the related risk of rupture vs. the risk of surgical management. The present meta-analysis sought to assess the association between the surgical outcomes of anterior and posterior circulation UIAs. The present study investigated the comparative articles involving the surgical treatment of anterior vs. posterior circulation UIAs through electronic databases, including the Cochrane Library, PubMed (1980 to March 2023), Medline (1980 to March 2023), and EMBASE (1980 to March 2023). Quoting all exclusion and inclusion criteria, nine articles finally remained for statistical analysis. The entire number of patients included in these nine articles was 3,253 (2,662 in the anterior and 591 in the posterior circulation UIAs group). The present meta-analysis proposes that the surgical treatment of anterior circulation UIAs is associated with better outcomes compared with the surgical management of posterior circulation UIAs [1)].

Rupture prevention

see High-resolution magnetic resonance vessel wall imaging

The management of UIAs should focus on the control of hypertension during the follow-up. Aneurysms on the posterior communicating artery, posterior circulation, and cavernous carotid arteries require intensive surveillance or timely treatment [2)].

The establishment of drug therapy to prevent rupture of unruptured intracranial aneurysms (IAs) is needed. Previous human and animal studies have gradually clarified candidate drugs for the

prevention of intracranial aneurysm rupture. However, because most of these candidates belong to classes of drugs frequently co-administered to prevent cardiovascular diseases, epidemiological studies evaluating these drugs simultaneously should be performed. Furthermore, because drugs included in the same class may have different effects in terms of disease prevention, drug-by-drug assessments are important for planning intervention trials.

Shimizu et al. performed a cross-sectional study enrolling patients diagnosed with IAs between July 2011 and June 2019. Patients were divided into ruptured or unruptured groups. The drugs investigated were selected according to evidence suggested by either human or animal studies. Univariate and multivariate logistic regression analyses were performed to assess the association of drug treatment with rupture status. They also performed drug-by-drug assessments of the association, including dose-response relationships, with rupture status.

In total, 310 patients with ruptured and 887 patients with unruptured IAs were included. Multivariate analysis revealed an inverse association of statins (odds ratio (OR), 0.54; 95% confidence interval (CI) 0.38-0.77), calcium channel blockers (OR, 0.41; 95% CI 0.30-0.58), and angiotensin II receptor blockers (ARBs) (OR, 0.67; 95% CI 0.48-0.93) with ruptured IAs. Moreover, inverse dose-response relationships with rupture status were observed for pitavastatin and rosuvastatin among statins, benidipine, cilnidipine, and amlodipine among calcium channel blockers, and valsartan, azilsartan, candesartan, and olmesartan among ARBs. Only non-aspirin non-steroidal anti-inflammatory drugs were positively associated with ruptured IAs (OR, 3.24; 95% CI 1.71-6.13).

The present analysis suggests that several types of statins, calcium channel blockers, and ARBs are candidate drugs for the preventive treatment of unruptured IAs [3].

Treatment decision

see Unruptured intracranial aneurysm treatment decision.

In the early 1990's, endovascular treatment using embolic coils for the treatment of intracranial aneurysms was established. Since then, there has been a significant body of peer-reviewed literature written by medical experts regarding the use, safety, and efficacy of these detachable embolic coils. With the publishing of the ISAT (Intracranial Subarachnoid Aneurysm Trial) trial data in 2005, which compared clinical outcomes of neurosurgical clipping and endovascular coiling, embolic coiling became the preferred method for treatment of the majority of unruptured intracranial aneurysms [4].

Surgery

see Unruptured intracranial aneurysm surgery.

Endovascular treatment (EVT)

see Unruptured intracranial aneurysm endovascular treatment.

References

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