

Streszczenie w języku angielskim

Introduction: The incidence of unruptured intracranial aneurysms (UIA) is 1.8 to 8.8 per 100 people. This depends on what kind of source we use and the diagnostic criteria we adopt. The higher use of CT and MR results in more frequent intracranial aneurysm identification. The management of aneurysms depends on comparing the hemorrhage risk and intervention risk. The treatment involves microsurgical or endovascular methods. The higher detectability of aneurysms and safer treatment methods provide for the treatment of smaller aneurysms and older patients. Many scales were created to calculate the risk of hemorrhage such as PHASES, or to choose the management such as UIATS, but we need studies to confirm their usefulness.

Purpose: We need studies that analyze the management of UIAs and the result of their treatment with different methods, as well as the usefulness of scales to assess hemorrhage risk and management.

Material and methods: We provide retrospective studies on two aneurysm locations: anterior communicating artery (ACoM) and ophthalmic aneurysms (ICA C6).

Results: In the first study, we analyzed the effectiveness and safety of flow divert stents in ICA C6 aneurysm treatment. We analyzed 52 patients with 65 aneurysms. The results showed that 98.1% of patients achieved good outcomes. The overall post-treatment risk of aneurysm rupture was 0.33% during a mean follow-up of 61 months. The annual risk of aneurysm rupture after treatment reached 0.07%. Patients with asymptomatic UIAs had no visual complications immediately after treatment, but with symptomatic UIAs, the results were variable. The complete occlusion was demonstrated in 12.3% of aneurysms but in 73.4% after 6 months. In long-term follow-up, good radiological outcomes were achieved in 95.4 % of aneurysms. Complications occurred in 40.4 % of patients, of which the most frequent were procedural complications, which occurred in 30.8% of patients. Late complications occurred in 11.5% of patients.

In the second study, we analyzed the results of our diverse strategy in ACoM UIAs with the additional goal of assessing the risk of treatment and the incidence of hemorrhage. We analyzed 131 patients, of which 45.8% were

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assessed for observation, 4 of presented with enlarged aneurysms during follow-up. The median time of observation in this subgroup was 60.9 months. There were no hemorrhages in the observation group. For the treatment, 69 aneurysms (53.5%) were assessed, 33.1% of them were assigned to endovascular treatment. Procedural complications occurred in 17.8% of cases, the majority of them were asymptomatic. 93.2% of patients were discharged in the same state as in admission. The mortality in this group was 4.5%, and the risk of neurologic deficits was 2.3%. In long-term follow-up (median time 7.25 months), 90% of aneurysms were occluded, and in 5 % of the near-complete occlusions (visible neck remnant), the dome remnant rate was 5%. Recanalization of 17.4% of the previously occluded aneurysms was demonstrated. In the long-term follow-up, 1 hemorrhage occurred. For 25 aneurysms microsurgical treatment was used. 76% of patients were discharged without deterioration. Up to 25% deteriorated due to treatment. Morbidity was 4.8% and permanent morbidity was 4.8%. There was no hemorrhage in this group.

In the third study, we compare management recommendations for ACoM UIAs, according to UIATS and PHASES, and compare them with each other and to real-life management. Among 129 aneurysms 46.5% were assessed for observation and 53.5% for treatment. According to PHASES,

the majority of aneurysms 86% had low risk of hemorrhage and 14 % were high-risk aneurysms. The PHASES scores were significantly higher in the group qualified for treatment. In accordance with UIATS, UIA repair was recommended for 27% of patients and conservative management for 32% of patients, while the recommendation remained not definitive for 37% of individuals. PHASES scores in the group under observation ranged from 4 to 9, and no high-risk aneurysms (according to PHASES interpretation) were identified. In this group, UIATS recommended UIA repair for 11% of patients and conservative management for 51% of patients, while 38% of patients lacked a specific recommendation. PHASES scores in the group of patients who underwent treatment ranged from 4 to 15, with 26% of them having high-risk aneurysms. According to UIATS, UIA repair was recommended for 42% of patients and conservative management for 19% of patients, and recommendations were not definitive for 39%.

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Conclusions:

1. Flow-diverting devices may offer a very high proportion of satisfactory radiological and clinical outcomes. However, due to the high rate of different types of complications, critical assessment of their use is essential.
2. Using diversified management of AComA UIAs, which include observation, microsurgery, and embolization, we have decreased the annual risk of SAH to 0.14% at the expense of 2.4% mortality and 1.6% permanent minor deficit rates in the treatment subgroup. The morbidity and mortality in AComA UIAs are compelling, but these refer to a high-risk group with potentially devastating consequences.
3. In two-thirds of cases, we showed a lack of concordance between PHASES and UIATS. Significant discordance in therapeutic suggestions underscores the predominant influence of center experience and individual assessments.