

## Abstract

**Introduction:** The surgical and endovascular results of the treatment of pial AVM provided at our Neurosurgical centre are presented. These results are supported by neuropsychological outcomes of subgroup of treated patients. Going by these results and by an overview of literary data on the efficacy and complications of each therapeutic modality, the optimal algorithm of indications is presented

**Cohort of patients:** The main series comprises 222 patients aged 9 to 87 years treated in the years 1998 - 2013. The surgical group consists of 85 patients, 55 patients received solely endovascular treatment. Thirty-four patients were consulted and referred directly to the Radiosurgical unit. The remaining 48 were recommended to abide by the strategy of „watch and wait". A subgroup of 66 patients, who underwent treatment of AVM was neuro-psychologically tested at least two years after treatment using a battery of tests constructed specifically for this study. A control group consisted of 10 subjects without any neurological disease.

**Results:** In the surgical group, serious complications were 3.5% at a 96.5% therapeutic efficacy. As for AVM treated with purely endovascular methods, serious procedural complications were seen in 5.5% of patients, with efficacy totalling 36.4%. One observed patient suffered bleeding resulting in death. For comparison with literary data for each modality, a survival analysis without haemorrhage following monotherapy for AVM with each particular modality was carried out.

Within neuro-psychology study the subgroup of patients with an obliterated AVM after treatment was compared to the control group showed no significant differences, similarly as divided according to treatment modality and in comparison of the SM groups.

**Conclusions:** Those patients in whom complete obliteration was achieved with treatment, scored in neuropsychological test similarly to the background population, implying active AVM treatment doesn't cause deterioration in neuropsychological performance.

1. We regard surgical treatment as the treatment of choice for AVM of Spetzler-Martin (S-M) grades I and II. As for grade III cases - only for those which are surgically accessible.
2. Endovascular intervention should be used mainly for preoperative embolization ion strictly selected cases, as a curative procedure solely for lower-grade AVM in patients with co-morbidities; for higher-grade cases as a palliation only.
3. Stereotactic irradiation with LGK is advisable mainly for poorly accessible, deep-seated grade-III AV malformations. In the case of lower grades, the final decision is left to the properly informed patient him/herself.
4. Observation should be used as the method of choice in AVM of grades IV and V where active therapy carries greater risk than the natural course of the disease