Endovascular treatment of brain arteriovenous malformations using precipitating hydrophobic injectable liquid (PHIL)

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Introduction Application of liquid embolic agents (LEAs) is a method of choice for endovascular treatment of cerebral arteriovenous malformations (AVMs). Nonadhesive agents (Onyx®-Medtronic, USA; Squid®Balt, France) are preferred. Thanks to the precipitating hydrophobic injectable liquid (Phil®Microven- tion, USA) and its several advantages has been popular endovascular solution.

Materials and methods We have treated 787 patients with cerebral AVMs. 41(5.2%) of patients were treated using only the PHIL agent, in 29 (70.7%) the treatment was finalized and 12 (29.3%) have further treatment. The results of 29 patients are considered in this paper.

Results Radical occlusion was achieved in 17 (58.6%) patients. A one-stage procedure was performed in 14 (48.3%) patients, a two-stage in 3 (10.35%) of them. Subtotal thrombosing was achieved in 7 (24.1%) patients and later were surgically removed. 5 (17.2%) patients underwent radiosurgical treatment after subtotal occlusion.

A perioperative hemorrhage was registered in 1 patient. Sufficient ischemic complications were observed in 1 patient. The clinical outcomes corresponded to mRS 0–1 (96.6%). A rough neurological deficit in the postoperative period was noted in 1 patient (3.45%). In the series were no cases of mortality.

Conclusion Using PHIL as the only LEA during endovascular treatment of AVMs enables one to obtain good angiographic and clinical results. Application of this agent provides high primary radicality and reduces number of endovascular stages to achieve expected occlusion, which significantly decreases complication risks and radiation exposure. Considering there are no big observation series and multicenter studies for this agent, it requires further research.

REFERENCES

Do you have any conflict of interest to declare?: No