

Postembolization hemorrhage

Is the most severe, dramatic and morbidity-mortality-related complication in the treatment of endovascular [arteriovenous malformations](#) (AVMs).

In 71 patients with cerebral AVMs having undergone 147 embolization sessions with n-butyl [cyanoacrylate](#) (n-BCA), carried out between 2006 and 2011. Clinical-demographic, morphological and treatment data as well as results were recorded. The relationship of post-procedure hemorrhage with demographic and morphological factors, percentage devascularization per session, venous drainage and whether or not post-procedure hypotension had been induced was investigated. Six post-embolization hemorrhages occurred, all in sessions characterized by extensive devascularization without the induction of post-procedure hypotension; which disappeared after a limit to the extent of devascularization per session and post-procedure hypotension were introduced. In the multivariate analysis, hemorrhage predictors were: nidus diameter < 3 cm (OR= 45.02; CI=95%:1.17-203.79; P=0.005); devascularization > 40% (OR=32.4; CI=95%: 3.142- 518.6; P=0.009) per session; intranidal aneurysms (OR=7.5; CI=95%:1.19-341.3; P=0.041) and lack of post-procedure hypotension (OR=16.51; CI=95%:1.81-324.4; P=0.049) and the association of sessions with devascularization exceeding 40% with lack of post-procedure hypotension, showed an increase in the risk of hemorrhage (OR=36.4; CI=95%:3.67-362.4; P=0.002). Extensive devascularization and the absence of post-procedure hypotension increase the risk of hemorrhage.

Jordan et al, suggest partial, 25-30%, devascularization per session and the induction of post-procedure hypotension, which produces a 20% decrease of the basal [mean arterial pressure](#) (MAP) ¹⁾.

¹⁾
Jordan JA, Llibre JC, Vázquez F, Rodríguez R, Prince JA, Ugarte JC. Predictors of hemorrhagic complications from endovascular treatment of cerebral arteriovenous malformations. Interv Neuroradiol. 2014 Feb;20(1):74-82. Epub 2014 Feb 10. PubMed PMID: 24556303.

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