



Flow Diversion in the Setting of Subarachnoid Hemorrhage

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Introduction

Flow diverters are increasingly used for treatment of intracranial aneurysms. In previous series, the Pipeline Embolization Device (PED) was used essentially for the treatment of unruptured aneurysms. Little is known about the use of the PED in ruptured aneurysms. We assess the safety and efficacy of the PED in the largest series of acutely ruptured aneurysms to date.

Methods

A total of 20 patients with freshly ruptured aneurysms were treated with the PED between May 2011 and September 2013. Patients were loaded with aspirin and clopidogrel 8 hours before the procedure. Platelet function was closely monitored throughout hospitalization using P2Y12 assays. Data on procedural safety was prospectively collected.

Results

Mean aneurysm size was 6.6 mm. Fifteen aneurysms (75%) arose from the anterior circulation. The number of PEDs used was 1.0 per aneurysm. Treatment was staged (initial coiling followed by coiling 1-2 weeks later) in 4 patients (20%). Adjunctive coiling was used in 6 cases (30%). There was only 1 complication (5%) in the series; this was a fatal intraoperative aneurysm dome rupture that occurred during adjunctive coil deployment. At the latest follow-up (mean, 6.1 months), all but one aneurysm were completely occluded. No aneurysm required further treatment. All except one patient (95%) achieved a favorable outcome (mRS 0-2).

Conclusions

In this study, treatment of ruptured aneurysms with the PED was associated with low complication rates, high aneurysm occlusion rates, and excellent clinical outcomes. These findings suggest that the PED is a safe and effective alternative for ruptured aneurysms non amenable to conventional endovascular techniques or surgical clipping. A staged approach that entails initial aneurysm coiling followed by coiling 1-2 weeks later appears to be an adequate strategy in this setting.

Learning Objectives

PED is a safe and effective alternative for ruptured aneurysms.

PED can be used when the aneurysms are not amenable to conventional endovascular techniques or surgical clipping.

A staged approach appears to be an adequate strategy.

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