



The Pipeline Embolization Device in the Treatment of Recurrent Previously Stented Cerebral Aneurysms

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Introduction

The use of the flow diverter device in the management of recurrent previously stented cerebral aneurysms is controversial. The aim of this study is to evaluate the efficacy and safety of the flow diverter device in the treatment of recurrent, previously stented aneurysms.

Methods

21 patients with previously stented recurrent aneurysms who later underwent flow diverter device placement (group 1) were retrospectively identified and compared to 63 patients that had treatment with the PED with no prior stent placement (group 2). Occlusion at the latest follow-up angiogram, recurrence and re-treatment rates, clinical outcome, complications, morbidity and mortality observed after treatment with the flow diverter device were analyzed.

Results

Patient characteristics were similar between the 2 groups. The mean time from stenting to recurrence was 25 months. Flow diverter device treatment resulted in complete and near complete aneurysm occlusion (=90%) in 66.7% of patients in group 1 versus 89.3% of patients in group 2 (p=0.024). Re-treatment rate in group 1 was 11.1% versus 7.1% in group 2 (p=0.62). The rate of good clinical outcome at the latest follow-up in group 1 was 81% versus 93.2% in group 2 (p=0.1). Complications were observed in 14.3% of patients in group 1 and 9.5% of patients in group 2 (p=0.684).

Conclusions

The use of the flow diverter device in the management of previously stented aneurysms is less effective than the use of this device in non-stented aneurysms. Prior stent placement can worsen the safety and efficacy profile of the flow diverter device.

Learning Objectives

To look at the role of the flow diverter device in the management of recurrent previously stented aneurysms.

References

1. Raymond J, Guilbert F, Weill A, et al. Long-term angiographic recurrences after selective endovascular treatment of aneurysms with detachable coils. Stroke; a journal of cerebral circulation. Jun 2003;34(6):1398-1403.
2. Ferns SP, Sprengers ME, van Rooij WJ, et al. Coiling of intracranial aneurysms: a systematic review on initial occlusion and reopening and retreatment rates. Stroke; a journal of cerebral circulation. Aug 2009;40(8):e523-529.
3. Ries T, Siemonsen S, Thomalla G, et al. Long-term follow-up of cerebral aneurysms after endovascular therapy prediction and outcome of retreatment. AJNR. American journal of neuroradiology. Oct 2007;28(9):1755-1761.
4. Kallmes DF, Ding YH, Dai D, et al. A new endoluminal, flow-disrupting device for treatment of saccular aneurysms. Stroke; a journal of cerebral circulation. Aug 2007;38(8):2346-2352.
5. Fiorella D, Woo HH, Albuquerque FC, et al. Definitive reconstruction of circumferential, fusiform intracranial aneurysms with the pipeline embolization device. Neurosurgery. May 2008;62(5):1115-1120; discussion 1120-1111.
6. D'Urso PI, Lanzino G, Cloft HJ, et al. Flow diversion for intracranial aneurysms: a review. Stroke; a journal of cerebral circulation. Aug 2011;42(8):2363-2368.