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Experience with Pipeline Embolization Device for Posterior Circulation Aneurysms

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Introduction

Pipeline Embolization device (PED) have been adopted increasingly for anterior circulation aneurysms. Results on the safety and efficacy of this treatment for posterior circulation aneurysms are limited and initial results are not encouraging. We retrospectively reviewed our experience of PED in posterior circulation aneurysms.

Methods

A retrospective chart and imaging review of thirteen patients with posterior circulation aneurysms, treated with PED was carried out (treated between 2012-2015). A literature review was performed using standard online search tools.

Results

Present cohort includes aneurysms in various locations of posterior circulation (basilar artery=8, vertebral artery=3, PCA=1, PICA=1). There are nine males and four females in present cohort. Five patients died in post-operative period (two deaths are unrelated). One patient had delayed thrombosis. Incomplete occlusion was seen in one patient even after 18 mon. A second treatment was required in one.

Conclusions

Flow diversion with selective adjunctive techniques is evolving to become a safer treatment option. However, it should be used with caution, as immediate as well as delayed complications after obliteration and remodeling are known. The results are worse for basilar artery aneurysms. More studies with long term follow-up are required for better understanding and identifying the subset-at-risk of poor outcome.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of PED in posterior circulation aneurysms, 2) Discuss, in small groups,about the outcome, immediate and delayed complications for PED

References

1. The safety of Pipeline flow diversion in fusiform vertebrobasilar aneurysms: a consecutive case series with longer-term follow-up from a single US center

Natarajan SK, Lin N, Sonig A, Rai AT, Carpenter JS, Levy EI, Siddiqui AH. J Neurosurg. 2016 Jul;125(1):111-9

2. Treatment of vertebrobasilar fusiform aneurysms with Pipeline embolization device. Ahmed O, Storey C, Kalakoti P, Deep Thakur J, Zhang S, Nanda A, Guthikonda B, Cuellar H. Interv Neuroradiol. 2015 Aug;21(4):434-40