

Occlusion Fate of Aneurysms with Raymond 2 and 3 Residual Filling at Initial DSA Follow-Up After Flow Diversion

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Introduction

The fate of aneurysms that are not completely occluded after flow diversion is controversial. Rates of progression to complete occlusion are poorly understood. Some neuro-interventionists are aggressive about early re-treatment to expedite aneurysm obliteration.

Methods

Patients treated with PED from 2011-2017 at one institution were identified. DSA follow-up was performed at 6, 12, and 24 months post-embolization. Occlusion was graded according to the Raymond-Roy scale as (1) complete, (2) neck filling, and (3) dome filling. Clopidogrel was discontinued 6 months post-embolization and Aspirin was reduced to 81mg daily 12 months post-embolization.

Results

435 aneurysms had DSA at 6 and 12-month post-embolization, among which 69% were grade 1 at 6 months, 15% grade 2, and 15% grade 3. For grade 2/3 aneurysms, 26% progressed to grade 1 (complete occlusion) at 12 months (39% of grade 2, 12% of grade 3). 186 aneurysms had DSA at 12 and 24 months post-embolization, among which 71% were grade 1 at 12 months, 16% grade 2, and 13% grade 3. For grade 2/3 aneurysms, 44% progressed to grade 1 (complete occlusion) at 24 months (53% of grade 2, 33% of grade 3). 181 aneurysms had DSA at 6 and 24 months post-embolization, among which 62% were completely occluded at 6 months, 19% grade 2, and 18% grade 3. For grade 2/3 aneurysms, 57% progressed to grade 1 (complete occlusion) at 24 months, (71% of grade 2, 42% of grade 3).

Conclusions

Aneurysms with dome filling at 6-month DSA following PED are less likely than those with neck filling to progress to complete occlusion. A majority of those with neck filling will progress to complete occlusion by 24-month DSA. This has implications for counseling patients whose aneurysms are not occluded at the initial follow-up DSA after PED and argues for a conservative strategy regarding re-treatment.

Learning Objectives

To better understand the efficacy of flow diversion, the timeline of aneurysm occlusion, and the inter-relationship with tapering of antiplatelet medications.

References

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