Long-Term Follow Up of Aneurysms Treated with Hydrogel-Coated Coils

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Introduction

• Despite the safety and efficacy of endovascular coiling of aneurysm, recurrence rate can be as high as 30%
• Hydrogel coated coils use a platinum coil coupled to an expandable hydrogel polymer
• Prior studies have shown a decrease in aneurysm recurrence with increasing proportion of hydrogel coils used
• This study presents the five year follow up results of patients treated with hydrogel coated coils at our institution
Methods

- Patients with aneurysms coiled at Baptist Memorial Hospital in Memphis, TN between January 2003 and April 2012 were prospectively identified for inclusion if any of the coils used were hydrogel-coated.
- Ruptured and unruptured aneurysms were both included.
- Follow up angiography was performed at 6 months, 18 months, and 5 years.
- Images were scored by an independent adjudicator using the Raymond-Roy occlusion classification.
- Any retreatment or rupture following treatment was tracked.
Results

• 145 patients with 153 aneurysms were included in the study.
• 148 aneurysms (97%) had at least one follow up angiogram.
• 50 aneurysms (33%) had a five year follow up angiogram.
Results

• 36 aneurysms were in male patients, 117 were in female patients
• 64 aneurysms (42%) were ruptured
• Mean largest diameter of treated aneurysms was 7.3 mm
• 85 aneurysms were anterior circulation, while 68 were posterior circulation
Results

• Only 49% of aneurysms were scored as 1 or 2 immediately after treatment. This improved to 83% at 6 mos and 90% at 5 years.

• Of the 73 aneurysms scored 1 or 2 immediately after treatment, only 7 (9.5%) recurred to Raymond 3a or 3b by 5 year follow up.

• Retreatment rate was 14%.
Discussion

• The single-center nature of the study is a limitation, but the aneurysm scoring was done in an independent and unbiased manner.
• This is a large cohort of patients with long-term angiographic follow up.
• The data suggest that in aneurysms treated with hydrogel-coated coils, recurrence and retreatment rates are low.
Summary

• This large cohort of hydrogel-coated aneurysm coiling patients with long-term follow up angiography demonstrates rates of recurrence and retreatment lower than the published literature.

• Use of hydrogel-coated coils may help to prevent aneurysm recurrence and the need for retreatment.