E-005 ANEURYSM TREATMENT WITH A NEW GENERATION FLOW DIVERTER

[1]M Marosfoi, [1]E Langan, [1]R King, [1]F Clarençon, [1]I Lylyk, [1]O Brooks, [2]R Slazas, [1]A Puri, **[1]M Gounis**. *[1]Radiology, University of Massachusetts, Worcester, MA; [2]Research and Development, Codman Neurovascular, Miami, FL*

10.1136/neurintsurg-2016-012589.77

Introduction The BRAVO flow diverter (Codman Neurovascular) is a variable count, braided implant made of nitinol wires for optimized wall apposition, with platinum wires for radiopacity. The implant also has laser-cut nitinol expansion rings at each end for instant opening and accurate placement. We hypothesize that there are no differences in aneurysm occlusion rates between the BRAVO and reference flow diverter (Pipeline Embolization Device, PED).

Materials and methods Twenty-four rabbits with saccular, elastase induced aneurysms were randomly assigned to receive a BRAVO or PED. Inclusion criteria for implant were the origin of the left common carotid artery at the brachiocephalic trunk, presence of an aneurysm and subclavian artery at the origin of the vertebral artery having a diameter <4.5 mm (thereby excluding cases with significant elastase leakage). Following implant, longitudinal imaging studies were performed at 30, 60, and 90 days by DSA with contrast injection via the central auricular artery. DSA was graded according to the scale of Darsaut et al., 2012;[1] namely, 0 = no change, 1 ≤ 50% volume reduction, 2 ≥ 50% volume reduction, 3 = aneurysm filling confined to the neck, and 4 = complete occlusion. Terminal angiography and histological analysis will be performed at 180 days. All animals were on dual antiplatelet therapy (DAPT, 10 mg/kg each of aspirin and clopidogrel) beginning at least 4 days before implant and continued until 30 days after implant.

Results Baseline characteristics (e.g., aneurysm size, neck size, PRU, parent vessel diameter) were not different between the two groups ($p > 0.05$). Clopidogrel had a significant effect on PRU (231 ± 38 at baseline vs 56 ± 25 after DAPT, $p < 0.0001$). One animal assigned to BRAVO was excluded due to the diameter of the subclavian artery >4.5 mm. Another animal in the PED group was excluded due to distal migration of the device following deployment leading to incomplete coverage of the aneurysm neck. All remaining devices were accurately deployed. Longitudinal imaging studies have shown progressive healing of the aneurysms for both devices, with approximately half of the aneurysms completely occluded at 90 days (Figure 1). There are no differences between the occlusion rates of the devices.

Conclusion A new flow diverter has been designed to enable accurate placement with self-expanding rings at both ends of the device. This new generation device has equivalent occlusion rates in a rabbit model of saccular aneurysms as compared to the reference device.

REFERENCE

1 Darsaut TE, *et al*. *AJNR* 2012;**33**:2004–2009.

Disclosures M. Marosfoi: None. **E. Langan:** None. **R. King:** None. **F. Clarençon:** None. **I. Lylyk:** None. **O. Brooks:** None. **R. Slazas:** 5; C; Codman Neurovascular. **A. Puri:** 2; C; Codman Neurovascular. **M. Gounis:** 1; C; Codman Neurovascular. 2; C; Codman Neurovascular.

E-006 BRAINSTEM REPERFUSION INJURY FOLLOWING ENDOVASCULAR TREATMENT OF POSTERIOR CIRCULATION ISCHEMIA

[1]T Higashimori, [1]J Kim, [1]D Sandhu, [2]C Streib, [3]R Tummala. *[1]Neurosurgery, Neurology and Radiology, University of Minnesota, Minneapolis, MN; [2]Neurology, University of Minnesota, Minneapolis, MN; [3]Neurosurgery, University of Minnesota, Minneapolis, MN*

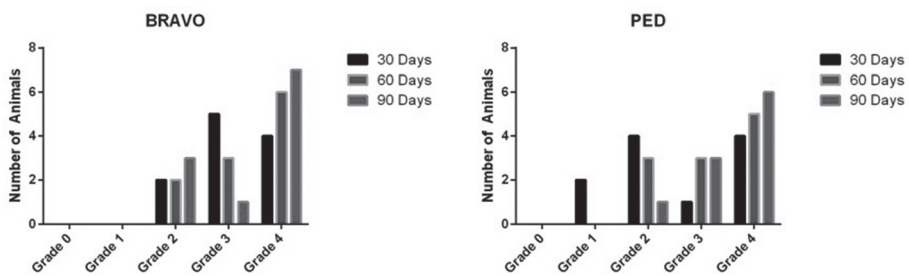
10.1136/neurintsurg-2016-012589.78

Introduction Reperfusion injury is a recognized but fairly uncommon consequence of revascularization of anterior circulation large vessel occlusion. It has not been described in the posterior circulation, perhaps because of the lower incidence of posterior circulation occlusive disease and because many of these lesions were not historically amenable to revascularization. We describe two cases of brainstem hemorrhage following revascularization of vertebrobasilar arterial occlusion.

Methods The medical records and images of patients who underwent revascularization of the posterior circulation were reviewed. Cases were identified from our institutional neuroendovascular database.

Results Two patients with brainstem hemorrhages following angioplasty and stent placement in the posterior circulation were identified. The first patient was a 68 year-old woman with systemic lupus erythematosus and multiple, recurrent posterior circulation strokes. She had bilateral vertebral artery occlusion with poor angiographic collaterals. She underwent uneventful placement of a balloon mounted stent in the left vertebral artery, and a good angiographic result was obtained. Thirty minutes later, she became comatose and a massive pontine hemorrhage was discovered.

The second patient was a 78 year-old woman with recurrent syncope and scattered cerebellar strokes. She had flow limiting basilar artery stenosis and required systolic blood pressures >180 mm Hg to maintain consciousness. She could not be maintained without vasopressors and endovascular treatment was performed. She underwent successful angioplasty and stent placement. She was in good neurological



Abstract E-005 Figure 1 Grade of aneurysm occlusion for each device group over time