Conclusion Our results suggest that higher contrast Injection Rates can significantly increase intraneurysmal pressures during angiography. Whether a ~5% increase in intraneurysmal pressure can cause aneurysm rupture needs to be evaluated. Angiography studies need to be conducted *in vivo* to verify these findings.

REFERENCES

1. Kovarovic B, et al. *Cardiovasc Eng Technol* 2018;**9**(2):226–239.
2. Celtikci P, et al. *Turk Neurosurg* 2018;**28**(6):1009–1012.
3. Yousem, DM, et al. *AJNR* 2001;**22**:1838–1840.

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E-211 ANEURYSM SIZE AND IMPACT ON MIDDLE CEREBRAL ARTERY PRESSURE: CHANGES FOLLOWING FLOW DIVERSION

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Background The impact of cerebral aneurysm size on distal intracranial hemodynamics such as pressure is not completely understood, either before or after flow diversion (FD).

Objective To assess the impact of aneurysm size on distal pressure before and after FD. **METHODS** Beginning in December 2015, prospective measurement of middle cerebral artery (MCA) pressure was completed in consecutive patients with unruptured cerebral aneurysms in the ophthalmic to communicating segments of the internal carotid artery which were treated with a single FD. Pressure was recorded at the M1 segment ipsilateral to the cerebral aneurysm. Ratio of MCA to radial arterial pressure (pressure ratio, PR) controlled for variations in systemic blood pressure. Correlation between aneurysm size and MCA PR was assessed before and after treatment.

Results 29 aneurysms were treated in 27 patients. Mean aneurysm size was 7.4 mm (2–27 mm). Aneurysm size correlated linearly with systolic PR (1% per mm, $p=0.001$, $r^2=0.33$; figure 1A) and mean PR (0.6% per mm, $p=0.03$, $r^2=0.17$; figure 1B). After FD, aneurysm size continued to have a linear correlation with the systolic PR (1% per mm,

$p=0.004$, $r^2=0.28$; figure 1A), but not with the mean PR (0.4% per mm, $p=0.15$, $r^2<0.1$; figure 1B).

Conclusion Aneurysm size affects distal hemodynamics: patients with larger aneurysms have increased systolic and mean MCA PR. After FD, mean MCA PR no longer associates with the aneurysm size, suggesting an effect of the FD on distal intracranial hemodynamics.

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E-212 PULSERIDER IN THE TREATMENT OF WIDE-NECK BIFURCATION ANEURYSMS: INTERIM RESULTS OF THE NAPA TRIAL

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Introduction The NAPA study was a prospective, multicenter, single-arm IDE trial of the PulseRider device as an adjunctive treatment in conjunction with coil embolization of unruptured wide-neck bifurcation aneurysms which was electively discontinued for reasons not related to the safety or performance of the device. We report on the available enrollments in NAPA and their available follow up.

Methods The PulseRider device was implanted in 18/21 enrollments. Available core-lab adjudicated data from the first 18 implants is presented. Of those, 5 have one year follow up data available. Of the 3 device implantation failures, the locations included basilar (1), carotid terminus (1), and ACOMM (1).

Abstract E-211 Figure 1

Results For the 18 patients with PulseRider implanted as a coil-adjunct device, the mean age was 60.7 ± 8.9 yrs and 16 were female. The mean aneurysm diameter was 6.6 ± 2.2 mm, height 5.3 ± 1.7 mm and neck 4.8 ± 1.5 mm. Locations included the basilar apex (11), MCA bifurcation (4) and ACOMM (3). Thirteen of 18 were de novo aneurysms while the remainder (5) were treated in the setting of aneurysmal recurrence. The most common PulseRider placement was extra-aneurysmal (12/18), followed by intra-aneurysmal (4/18) and hybrid (2/18). Immediate angiographic occlusions were 66.6% RR-I, 16.7% RR-II, 16.7% RR-III. There were no device related adverse events. There were 3 (16.7%) procedure-related adverse events which did not result in neurological changes. Seven enrollments have 6 month follow up and all are RRI-II. Only 1 has one year angiographic follow up (RRI) adjudicated by the core lab, and 4 have clinical follow up (4/4 mRS 0–2). None of the target aneurysms have required retreatment.

Conclusions The results of the discontinued NAPA provide high quality data on the occlusion rates and safety profile for the PulseRider device. Further one year angiographic and clinical follow up will be reported when available.

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E-213

STENT-ASSISTED COILING OF CEREBRAL ANEURYSMS: HEAD TO HEAD COMPARISON BETWEEN THE NEUROFORM ATLAS AND EZ STENTS

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Introduction The Neuroform Atlas stent is thought to have features allowing for an improved stent delivery system. We aimed to provide a head-to-head comparison between stent-assisted coiling (SAC) using the Atlas and EZ stents.

Methods Patients treated with SAC were retrospectively evaluated. 77 aneurysms treated with the Atlas stent and 77 aneurysms treated with the EZ stent were included. Outcomes included angiographic occlusion per the Raymond-Roy (RR) scale, recanalization, retreatment and procedural complications.

Abstract E-213 Table 1 Baseline patient characteristics

	Atlas stent (n=77)	EZ stent (n=77)	P value
Mean patient age (range)	60.8 (12.7)	56.1 (12.7)	0.02
Gender (% Male/Female)	16.9/83.1	33.8/66.2	0.2
Mean aneurysm size (range)	6.4 (2.4)	6.9 (3.6)	0.3
Ruptured aneurysm (%)	0	3.9	0.2
Aneurysm shape (% saccular/fusiform)	97.4/2.6	88.3/11.7	0.06
Multilobed aneurysm	5.2	2.6	0.7
Location (% Anterior/Posterior circulation)	80.5/19.5	71.4/28.6	0.3
Median number of stents deployed	1	1	0.2
Staged intervention (%)	7.8	10.4	0.6
Y-stenting (%)	3.9	9.1	0.3
Mean angiographic follow-up (range)	8.7 (2.7)	25.1 (11)	0.0001
Mean clinical follow-up (range)	6.1 (4.1)	23.8 (12.4)	0.0001

Abstract E-213 Table 2

	Atlas stent	EZ stent	P value
Technical success (%)	100	96	0.2
Immediate Raymond Roy 1 occlusion (%)	81.8	67.6	0.03
Immediate Raymond Roy 2 occlusion (%)	18.2	21.6	0.8
Immediate Raymond Roy 3 occlusion (%)	0	10.8	0.006
Immediate Raymond Roy 1 and 2 occlusion (%)	100	89.2	0.0007
Follow-up Raymond Roy 1 occlusion (%)	83.7	67.6	0.08
Follow-up Raymond Roy 2 occlusion (%)	9.3	15.5	0.4
Follow-up Raymond Roy 3 occlusion (%)	7	16.9	0.16
Follow-up Raymond Roy 1 and 2 occlusion (%)	93	83.1	0.16
Recanalization (%)	7	12.7	0.5
Retreatment (%)	4.6	14.1	0.009
Thrombo-embolic and hemorrhagic complications (%)	6.5	10.4	0.6
Complication with new neurological deficit (%)	1.3	2.6	1

Results The Atlas and EZ stent groups had overall similar baseline characteristics. With the Atlas stent, technical success was 100% and immediate RR1 occlusion was 81.8%. Follow-up RR1 was achieved in 83.7%. Recanalization rate was 7% and retreatment rate was 4.6%. Complication rate was 6.5% (new neurological deficit in 1.3%). With the EZ stent, technical success was 96% and immediate RR1 occlusion was 67.6% and follow-up RR1 occlusion was 67.6%. Recanalization rate was 12.7% and retreatment rate was 14.1%. Complication rate was 10.4% (new neurological deficit in 2.6%). The rate of immediate RR1 occlusion (p 0.03) was significantly higher with the Atlas stent and the rate of follow-up RR1 occlusion (p 0.08) was non-significantly higher with the Atlas stent. The recanalization rate was non-significantly lower with the Atlas stent (p 0.5); the retreatment rate was significantly lower with the Atlas stent (p 0.009). There was no significant difference in the complication rate (p 0.6).

Conclusion SAC with the Atlas stent is safe and effective and shows better immediate results as compared to the EZ stent, with improved overall follow-up outcomes.

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