Abstract P-027 Table 1 IONM Alert and Diagnostic Information for All Procedures and 2 Cohort Subgroups

Category	All Procedures	No MEP Cohort	MEP Cohort
True Negatives (n)	2200	1474	726
False Positives (n)	51	27	24
True Positives (n)	24	12	12
False Negatives (n)	3	2	1
Cases with alerts, n (%)	120 (5.2%)	68 (4.5%)	52 (6.8%)
Sensitivity-% [95% CI]	88.9 [70.8,97.7]	85.7 [57.2,98.2]	92.3 [34.0,99.8]
Specificity-% [95% CI]	97.7 [97.0,98.3]	98.2 [97.4,98.8]	96.7 [95.3,97.9]
PLR- Value [95% CI]	39.2 [29.0,53.1]	47.7 [31.0,73.3]	28.9 [18.9,44.1]
NLR- Value [95% CI]	0.11 [0.04,0.33]	0.15 [0.04,0.52]	0.08 [0.01,0.52]

Abstract P-027 Table 2 Odds Ratios (OR) for New Deficit Based on Signal Change and Complication. Odds Ratio referent was c

Cause of Change	Attenuation- OR [95% CI]	Loss -OR [95% CI]
Any Complication (n=83)	210.9* [44.3,1003.5]	1437.3* [297.3,6948.2]
Rupture (n=16)	808.5* [105.1,62220.8]	8624.0* [708.7,10494.8]
Embolus (n=22)	308.0* [37.9,2504.]	924.0* [158.3,5392.1]
Instrumentation (n=38)	34.8** [3.1,393.6]	539.0* [60.2,4824.5]
Vasospasm (n=7)	808.5* [105.1,6220.8]	N/A

Abstract P-027 Figure 1 Rate and Odds Ratios (OR) for New Deficit After IONM Change Associated with Perioperative Arterial Complication as a Function of the Resolution of the Change.

a new deficit significantly increased as a function of the magnitude of IONM change and type of complication (table 2). For procedures with changes associated with a perioperative complication (n=83), the rate of new neurologic deficit was 60% if the change remained unresolved (n=18/30). However, the rate and risk of new deficit was significantly decreased if a change was partially resolved (28.6%, n=6/21, OR=0.27), and was dramatically decreased if fully resolved (3.1%, n=1/32, OR=0.02) (figure 1).

Conclusions IONM has excellent diagnostic accuracy during cerebral neuroendovascular procedures. Both the magnitude and putative cause of IONM change provide diagnostic and prognostic information. Perioperative complications are significantly less likely to result in postoperative dysfunction if there is a timely diagnosis and intervention that results in the resolution of IONM signal change.

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P-028

WEB COLOMBIAN MULTICENTER EXPERIENCE (WEB.COM) : CLINICAL AND RADIOLOGICAL MID- TERM RESULTS IN THE TREATMENT OF INTRACRANIAL ANEURYSMS

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Introduction Woven EndoBridge (WEB) is a novel device for the treatment of ruptured and unruptured bifurcation aneurysms. To our knowledge none experience in Latin America has been reported. In the present study, we present a multicenter early experience and mid-term follow data for patients treated with WEB.

Materials and methods 32 consecutive patients with 33 intracranial aneurysms underwent endovascular treatment using WEB between March 2016 and February 2019 in four different centers and cities. We retrospectively evaluated the angiographic results at the end of the procedure and at follow-up, technical considerations, the clinical status and complications.

Results

All attempted cases were treated, but one. Non procedural rupture was recorded. Aneurysm locations were internal carotid artery bifurcation (n=6), middle cerebral artery (n=17), anterior communicating artery (n=4), Basilar Trunk (n=1) and basilar tip (n=5). Eight patients were treated in the setting of acute subarachnoid hemorrhage. 1.12 Devices per aneurysm. 32 of 33 cases treated with web without coils. In five cases was necessary additional stenting- 15%. 16/29 with angiographic follow-up, complete occlusion A-B in 15/16. Procedural mean time 17 min. **Conclusion**

This series is at the moment the only, multicenter, Latin American experience of patients treated with WEB. The treatment shows a good safety and efficacy in the endovascular treatment of WNB intracranial aneurysms.

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P-029

LONGITUDINAL MONITORING OF FLOW-DIVERTING STENT TISSUE COVERAGE AFTER IMPLANT USING NEUROVASCULAR HIGH FREQUENCY OPTICAL COHERENCE TOMOGRAPHY

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Introduction High frequency optical coherence tomography (HF-OCT) is an intra-vascular imaging modality designed for cerebrovascular anatomy. With a spatial resolution approaching

Abstract P-029 Figure 1 An example of HF-OCT cross section analysis. The aneurysm is visible between 9 and 1 o'clock. The covered ostium segment is labelled using the red color; the non-covered ostium segment with green color (A). The graph on the right shows the percentage of bifurcation coverage (vertical axes) as a function of time (horizontal axes) for the three different antiplatelet regimens (B).

10 μ m, HF-OCT can visualize the interaction between the vessel wall and neurovascular devices in great detail.^{1, 2}

In this study, we sought to evaluate its use to monitor tissue growth over flow diverter stents (FDS) in an arterial bifurcation rabbit model.

Materials and methods Six FDS (Pipeline Embolization devices) were deployed in 6 animals, covering the iliac bifurcation. Four animals were treated with double antiplatelet therapy (10 mg/kg aspirin and clopidogrel), 1 with aspirin (10 mg/kg) and 1 was not given any treatment.

HF-OCT data were obtained at three different time points per each animal (at implant for all animals then 14 and 60 or 7 and 30 days).

For each ostium section, manual segmentation was performed to quantify the percentage of the ostium surface covered by metal and tissue (figure 1A).

Results Good quality HF-OCT data sets were successfully acquired in all cases. An average of 35 sections (with a spacing between sections of approximately 70 μ m) were analyzed per ostium for each time point. Between 0 and 30 days after implant, HF-OCT analysis showed a significantly higher ostium coverage when DAPT was not given. After 30 days, similar growth rates were found in the DAPT and in the aspirin group (Figure 1B). At 60 days a high 90% coverage rate was reached in both groups.

Conclusions HF-OCT enables an accurate visualization of tissue growth over time on FDS struts. HF-OCT imaging can contribute in the pre-clinical evaluation of novel neurovascular devices and, in the near-future, it could potentially contribute to a personalized care, helping the physicians in determining and modulating the ideal antiplatelet regimen for each patient.

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P-030

INTRA-ANEURYSMAL FLOW DIVERSION ASSESSMENT USING PERI-OPERATIVE ADVANCED IMAGING AFTER FLOW DIVERTING STENT (FDS) PLACEMENT: ARE 64 WIRES BETTER THAN 48?

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Background and Purpose Flow diverter devices (FDS) are a true breakthrough in the treatment of neurovascular disease. FDS reduce intra-aneurysmal blood flow inducing progressive thrombosis in a great proportion of treated intracranial aneurysms (IAs). Most of the first generation FDS devices had 48 braided wires, however, next generation devices have 64 wires with better deployment systems. The purpose of this study was to compare intra-aneurysmal flow modifications and flow diversion efficacy between deployments of a newly designed 64-wire (Surpass Evolve; Stryker) and a 48-wire (Pipeline; Medtronic) FDS in various patient-specific silicone aneurysm models.

Methods In-vitro experimental set-up using circulating water system and 4 silicone models with internal carotid aneurysms were used. We assessed the intra-aneurysmal flow modification after stent deployment (Evolve vs. Pipeline) using a flow-analysis digital subtraction angiography (DSA) system (Aneurysm-Flow, Philips Healthcare). The application uses a 3D rotational angiogram (3DRA) and 60 frames/sec DSA runs before and after device deployment to calculate a Mean Aneurysm Flow Amplitude Ratio (MAFA-R). MAFA-R's are of interest in this experiment as this ratio has previously been shown to be a reliable independent predictor for intracranial aneurysm thrombosis (Pereira et al., 2012). A total of 8 devices were deployed in four different silicone models. For each experimental model, we randomly selected either a Pipeline or Evolve stent to deploy first, followed by removal and deployment of the other stent. Intra-aneurysmal flow calculations were performed before and after each stent deployment and compared using a paired t-test. A VasoCT was performed to confirm suitable stent apposition to the arterial wall.