Abstract O-014 Figure 1 Example of a 'not adequately deployed' device based on HF-OCT. (A-D) Baseline HF-OCT, 12 weeks final DSA, SEM, and 12 weeks HF-OCT, respectively, for a case with the presence of protrusion and absence of malapposition (white arrow, A). A large amount of uncovered device struts were found by both SEM and HF-OCT images (White arrow, D). (E-H) an example of 'adequate deployment': baseline HF-OCT, 12 weeks DSA, SEM image, and 12 weeks HF-OCT, respectively, for an animal without any protrusion or malapposition. A positive outcome

interaction between adequate deployment on HF-OCT and positive outcome was confirmed ($p=0.007$). However, there was no statistically significant relationship between good outcome and adequate deployment based on DSA images ($p=0.289$). Based on HF-OCT images, the absence of the protrusion was related with a positive outcome ($p=0.006$); however, malapposition had no significant interaction with positive outcome ($p=0.19$). The area of neointimal tissue quantified by HF-OCT showed a strong correlation with SEM assessment ($R^2=0.96$; $p<0.001$). The mean neointimal coverage on 'adequate deployment' cases was 78%, whereas a mean neointimal coverage of 31% was found for the 'not adequate deployment' cases ($p=0.001$).

Conclusion HF-OCT may be valuable prognosticate adequate aneurysm occlusion with the WEB and can be used to monitor aneurysm healing longitudinally. Absence of protrusion was associated with subsequent aneurysm occlusion; however, malapposition alone did not show an effect on the rate of aneurysm healing.

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O-015

COMFORT – COLOMBIAN MULTICENTER FLOW-DIVERTER OBSERVATIONAL RECONSTRUCTION TRIAL. LOCAL EXPERIENCE IN THE ENDOVASCULAR TREATMENT OF INTRACRANIAL ANEURYSMS WITH FRED STENT

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Purpose Flow-diverting stents, such as the Flow Re-direction Endoluminal Device (FRED; MicroVention, Tustin, California, USA), have emerged as a novel means of treating complex intracranial aneurysms. This observational analysis of the initial Colombian experience provides insight into patient selection, technical challenges, clinical and radiographic outcomes, and complication rates after the use of FRED device for intracranial aneurysms.

Materials and Methods Cases were compiled from 5 Colombian centers between March 2014 and April 2017. We performed a multicenter study evaluating patients with intracranial aneurysms treated with FRED. Technical success, morbidity and mortality were registered. Regarding safety, a well-defined variables included: spontaneous rupture of the FRED-treated aneurysm; spontaneous nonaneurysmal or distal intracranial hemorrhage (ICH); thrombo-embolic stroke; parent artery stenosis, and permanent cranial neuropathy.

Results During the defined study period, 252 patients with 268 aneurysms treated with FRED were included in this registry. Technical success stent deployment observed in all cases with exception of two cases where the operators decided to pull back the device and treated the aneurysms with other strategy. The mean aneurysm size was 12.4 ± 5 mm, and the median angiographic follow-up was 6.5 months. 81 aneurysms (30.2%) were small, 132 (49.2%) were large and 55 (20.5%) were giant. The median clinical follow-up time was 8.2 months. The neurological morbidity rate was 7.5% (19/252), and the neurological mortality rate was 2.3% (6/252). The combined neurological morbidity/mortality rate was 9.8%. The most common adverse events were ischemic stroke (5.9%, 15/252) and spontaneous ICH (1.9%, 5/252). The complete occlusion rate at the last follow-up was 87.6% (92/105).

Conclusion In the largest regional series on FRED for intracranial aneurysms to date, data suggest that treatment with the Flow Re-direction Endoluminal Device is safe and efficacious, with complication rates comparable with others FD

available. Our local results are promising but larger series with long-term follow-up are required to determine its superiority.

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O-016

SURPASS EMBOLIZATION OF INTRACRANIAL ANEURYSMS AT TWO HIGH VOLUME COMPREHENSIVE STROKE CENTERS: UNEXPECTEDLY HIGH RATE OF NEUROLOGIC COMPLICATIONS

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Introduction/Purpose The Surpass flow-diverter (FD) has been offered as a new alternative to preexisting Pipeline FD with a comparable safety profile.¹ Prior publications have listed neurologic morbidity and mortality complication rates as 6% and 2.7% for the Surpass FD & 8.4% & 3.8% for the Pipeline FD respectively.^{1,2,3} Anecdotal national experiences with the Surpass FD have been mixed, and there is a scarcity of data on real world complications of Surpass FD. A systematic review of cases performed at a high volume comprehensive stroke center involving the Surpass device was conducted.

Materials and Methods A review of all aneurysms treated with the Surpass FD at two high volume aneurysm treatment centers was conducted. Procedures involving the Surpass FD were conducted almost exclusively by experienced neuro-interventionalists with a combined experience of greater than 400 Pipeline FDs at two large academic comprehensive stroke centers.

Results All consecutive cases done between 1/10/2019 to 1/2/2020 were included. There were 55 patients with 68 treated aneurysms. Procedure related complications occurred in 12 patients (21.8% of cases) with permanent neurologic morbidity present in 11 patients (20.0%). Mortality attributable to complications from Surpass stenting occurred in 2 patients (3.6%). Ophthalmologic thromboembolic complications consisting of visual field compromise, ophthalmic artery thrombosis, or retinal hemorrhage occurred in 4 patients (7.3%). Stent thrombosis occurred in 2 cases (3.6%). Technical difficulty in device deployment resulted in 3 complications (5.5%): confirmed distal MCA guidewire perforation; suspected distal MCA guidewire perforation as a cause of immediate post-procedural subarachnoid hemorrhage; and proximal internal carotid artery dissection resulting in ischemic stroke. In one case the Surpass device could not initially be deployed but procedure was repeated later with a proctor present. Seizures developed following the procedure in 5 patients, with focus identified on ipsilateral side in 3 cases & no definitive focus identified in 1 case (7.3% combined attributable cases).

Conclusion Complication rates in addition to technical issues in deployment with the Surpass FD were higher than anticipated, even when performed by experienced neuro-interventionalists. The types of the complications included technical

difficulty in device deployment, vascular injury, thromboembolic events and unexplained ipsilateral seizures. Large scale future registry analysis should focus on national data regarding the safety profile of Surpass.

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O-017

REPEAT FLOW DIVERSION FOR PREVIOUSLY FAILED FLOW DIVERSION: MULTICENTER EXPERIENCE

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Background Aneurysmal persistence after flow-diversion (FD) occurs in 5–25% of aneurysms which might necessitate further treatment. A frequently used retreatment paradigm utilizes the deployment of another flow-diverting device (FDD) in a telescoping fashion within the existing device. There are no current data evaluating this strategy.

Methods A retrospective review of patients undergoing FD retreatment from 15 centers was performed, with inclusion criteria being repeat FD occurring for the same aneurysm at least 6 months after initial treatment, with minimum of 6 months of imaging follow-up after retreatment. Primary outcome was aneurysmal occlusion, and secondary outcomes were safety and complications. A multivariable logistic regression model was constructed to identify predictors of persistence/occlusion after retreatment. Comparative Kaplan-Meier curves were developed to assess the effect of early (6–12 months since initial treatment) vs late retreatment (>12 months since initial treatment) on the cumulative incidence of aneurysm occlusion over time.