E-227 FEASIBILITY OF ROBOTIC-ASSISTED NEUROENDOVASCULAR PROCEDURES

1V Mendes Pereira*, 1N Cancelliere, 1P Nicholson, 1I Radovanovic, 1A Turk, 1J Sungur, 1T Krings. 1Medical Imaging and Neurosurgery, Toronto Western Hospital – University Health Network, Toronto, ON, Canada; 2Corindus – Siemens Healthineers Company, Boston, MA; 3Medical Imaging and Neurosurgery, Corindus – Siemens Healthineers Company, Boston, MA

Background Global geographic inequity exists in access to advanced neuroendovascular procedures for the management of acute ischemic stroke and aneurysmal subarachnoid hemorrhage. Robotic technologies may enable long-distance telestroke intervention in the future. This study assessed the feasibility of a robotic-assisted system for neuroendovascular intervention.

Methods In this clinical case series, we used the assistance of a CorPath GRX Neuroendovascular Robotic System, (Corindus, A Siemens Healthineers Company, Waltham, MA USA) to perform intracranial, endovascular procedures in 6 patients with complex, wide-necked intracranial saccular aneurysms. We evaluated technical success, periprocedural complications, and need for conversion to manual procedures.

Findings Between November 2019 and February 2020, we treated six patients (five female) ranging from 63 to 84 years old. All procedures were successful with no complications or changes in baseline neurological status. There were no conversions to manual required for the procedures. Team communication and collaboration were excellent, even without line of sight between the bedside team and the primary operator of the robotic controls.

Interpretation We have demonstrated initial feasibility and safety of remote-controlled, robotic-assisted intervention during neuroendovascular procedures. This case series represents an incremental but important step toward the eventual realization of long-distance stroke care and geographic equalization of access to advance neuroendovascular procedures.

Disclosures V. Mendes Pereira: None. N. Cancelliere: None. P. Nicholson: None. I. Radovanovic: None. A. Turk: 5; C; CORINDUS - SIEMENS HEALTHINEERS COMPANY. J. Sungur: 5; C; CORINDUS - SIEMENS HEALTHINEERS COMPANY. T. Krings: None.

10.1136/neurintsurg-2020-SNIS.258

E-228 A NOVEL STENT-BALLOON DEVICE FOR TREATMENT OF SIDEWALL INTRACRANIAL ANEURYSMS

O Asgari*, H Sodawalla, 86001, T Becker, 86001. Bioengineering. Northern Arizona University, Flagstaff, AZ

Introduction Intracranial aneurysm rupture claim 15,000 American lives per year and impair over 9000 with neurological deficits. Current treatments are unable to remove the aneurysm threat permanently. Even after an endovascular treatment, an aneurysm could still regrow (recanalize) and rupture. Approximately 25% of patients receiving medical treatment will still die from an aneurysm rupture. Endovascular treatments can benefit from a novel medical device that seals along the aneurysm neck during device delivery to the aneurysm sac while allowing blood flow to perfuse the parent artery, thereby reducing the occurrence of complications resulting from endovascular device placement.

Methods The stent-balloon device is composed of a ultra-high compliant urethane balloon that extends over a self-expandable, shape-memory Nitinol braid stent/mesh (100–500 μm average pore size) attached to a 0.010–0.018” micro-guidewire/retriever (figure 1-a). The stent/mesh (similar dimensions to an LVIS Jr®) is delivered through the large (~0.018” ID) primary lumen and the balloon is inflated around the stent/mesh from the small (~0.006”) secondary lumen (50:50 contrast agent and sterile water). Blood flow in the parent vessel is maintained through the deployed stent/mesh and the balloon provides a smooth-consistent seal along the aneurysm neck (figure 1-b). The diameter of the expanded stent is at least 70–80% of the parent vessel artery. Subsequently, after device delivery, the jailed microcatheter is removed. The balloon is deflated, and the stent/mesh is retracted into the microcatheter.

Results The stent-balloon device can temporarily seal off the aneurysm neck during complementary device deployment while maintaining blood flow in the parent vessel, provide a smooth surface at the aneurysm neck to maximize device placement in the aneurysm sac, stop device migration into the parent vessel short-term, and reduce aneurysm recanalization risk long-term. The device with the stent and ultra-high compliant balloon can be used for treating sidewall aneurysms and bifurcation aneurysms where the stent can provide flow in the

Abstract E-228 Figure 1 (a) Balloon stent/mesh device (b) The position of device in front of aneurysm sac
primary branch while the compliant balloon can seal the aneurysm neck and temporarily occlude the secondary branch. **Conclusion** This device can improve the placement of devices, such as coils and a new generation of liquid embolics, into an aneurysm sac without blocking the parent vessel in the short-term, nor leaving metal in the parent vessel long-term. A new stent-balloon device would allow neurointerventionalists a less restricted time window to deploy embolic devices and obtain any complete aneurysm sac fill while concurrently limiting any protrusion or migration of the embolic devices downstream.

**Disclosures** O. Asgari: None. H. Sodawalla: None. T. Becker: None.

---

**E-229** ANEURYSM RECURRENCE IN ANTERIOR COMMUNICATING ARTERY ANEURYSMS TREATED WITH HYDROGEL COATED COILS COMPARED TO BARE METAL COILS

J MacDonell*, N Field, P Entezami, A Boulos, J Dalfino, A Paul. Department of neurosciences and Experimental Therapeutics, Albany Medical College, Albany, NY

**Introduction/Purpose** Anterior communicating artery aneurysms (ACoAAs) account for 30 to 37% of all intracranial aneurysms and are additionally the most common location of subarachnoid hemorrhages (SAH). Endovascular coiling has been down for 68 patients. 26 patients were categorized into the hydrogel treatment group and 42 into the bare metal treatment group. Of the 68 patients, 50 (74%) presented with aneurysm rupture revealed decrease recurrence rates in patients treated with hydrogel-coated coils at 5.9% (1/17) compared to patients treated with bare metal coils at 39.4% (13/33) (p 0.01).

**Conclusion** Hydrogel-coated coils may reduce recurrence rates in the treatment of both ruptured and unruptured ACoAAs.

**REFERENCES**


**Disclosures** J. MacDonell: None. N. Field: None. P. Entezami: None. A. Boulos: None. J. Dalfino: None. A. Paul: None.

---

**E-230** COMPARISON OF PED AND FRED FLOW DIVERSERS FOR POSTERIOR CIRCULATION ANEURYSMS: A PROPENSITY-SCORE MATCHED COHORT STUDY

**Introduction/Purpose** Flow diversion is a popular endovascular treatment for cerebral aneurysms, but studies comparing different types of flow diverters are scarce. Here, we performed a propensity score-matched cohort study comparing the Pipeline Embolization Device (PED) and Flow Redirection Intracranial Device (FRED) for posterior circulation aneurysms.

**Materials and Methods** Consecutive aneurysms of the posterior circulation treated at 25 neurovascular centers with either PED or FRED were collected. Propensity score matching was used to control for age, duration of follow-up imaging, adjunctive coiling, and aneurysm location, size, and morphology; previously ruptured aneurysms were excluded. The two devices were compared for the following outcomes: procedural complications, aneurysm occlusion, and functional outcome.

**Results** A total of 375 aneurysms of the posterior circulation were treated in 369 patients. The PED was used in 285 (77.2%) and FRED in 84 (22.8%) of procedures. Aneurysms treated with the PED were more commonly fusiform in morphology and larger in size compared to the FRED aneurysms. To account for these important differences, propensity score matching was performed resulting in 44 PED and FRED unruptured aneurysm pairs. There were no differences between the two devices in terms of occlusion status, functional outcome, and neurologic complications.

**Conclusion** Comparative analysis of PED and FRED for the treatment of unruptured posterior circulation aneurysms did not identify significant differences in aneurysm occlusion status.