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## 1.2 HAEMORRHAGIC – Brain AVM/AVF, spinal vascular malformations

### 018/172 DURAL ARTERIOVENOUS FISTULAS WITH COGNITIVE IMPAIRMENT: ANGIOGRAPHIC CHARACTERISTICS AND TREATMENT OUTCOMES

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**Introduction** Several small series have described cases of patients with dural arteriovenous fistulas (dAVFs) presenting with rapidly progressive dementia. The angioarchitecture of dAVFs that lead to cognitive impairment is unknown.

**Aim of Study** To determine the angiographic characteristics of dAVFs that lead to cognitive impairment (dAVF-CI).

**Methods** We analyzed the CONDOR database. CONDOR is an international multicenter database that includes 1077 dAVFs. Data from patients with dAVFs that presented with cognitive impairment were analyzed. A propensity score matching analysis of Borden type II and type III dAVFs that presented either with or without cognitive impairment (control) was performed. Logistic regression was performed to identify characteristics of dAVF-CI.

**Results** A total of 60 dAVFs-CI and 60 control dAVFs were analyzed. The mean age of patients with dAVF-CI was 58 ± 18 years. Venous hypertension was present in all dAVFs-CI. Sinus stenosis was significantly associated with dAVFs-CI (OR 2.85 95% CI: 1.16–7.55, p = 0.027). dAVFs-CI are

characterized by multiple arteriovenous shunts with more arterial feeders (OR 1.56, 95% CI 1.22–2.05, p < 0.001) and draining veins (OR 2.05, 95% CI 1.05–4.46, p = 0.049). Venous ectasia was associated with dAVFs-CI (OR 2.38, 95% CI 1.13–5.11, p = 0.024). dAVF closure was associated with symptom resolution at follow-up (OR 2.86, 95% CI 0.85–9.56, p = 0.09).

**Conclusion** Venous hypertension is a characteristic present in all dAVFs-CI. Sinus stenosis and venous ectasia impair drainage and favor venous hypertension. Successful treatment may reverse symptoms before infarction occurs.

**Disclosure of Interest** Nothing to disclose.

## 1.3 HAEMORRHAGIC – Miscellaneous

### 019/174 EARLY RESULTS WITH THE ESHUNT IMPLANT IN TREATMENT OF COMMUNICATING HYDROCEPHALUS FOLLOWING SUBARACHNOID HEMORRHAGE

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**Introduction** Aneurysmal subarachnoid hemorrhage (aSAH) may cause communicating hydrocephalus and elevated intracranial pressure (ICP) not amenable to weaning of cerebrospinal fluid (CSF) external ventricular drainage (EVD), often requiring surgical ventriculoperitoneal shunting (VPS) with risk of hemorrhage and infection.

**Aim of Study** To determine the utility of the endovascular CSF shunt (eShunt® System; CereVasc, Inc., Auburndale, MA, USA) in aSAH-induced hydrocephalus, we present initial single-center clinical experience with the eShunt implant in the post-aneurysmal hydrocephalus population.

**Methods** Patients having intractable elevated ICP with EVD clamping and favorable inferior petrosal sinus and bony anatomy were included. ICP was monitored before and after eShunt deployment for 36–48 hours. Primary endpoint was reached if ICP remained <20 cmH<sub>2</sub>O enabling EVD removal. CT imaging of the brain was obtained immediately post-eShunt placement to evaluate eShunt placement and assess for any presence of new procedural hemorrhage.

**Results** Seven out of eight patients (5 female; age 64 ± 12 years) underwent successful transfemoral transvenous eShunt procedure at 25.3 days (Range 14–38) post aSAH. Primary endpoint was achieved in all with EVD removal by 36–48 hours without procedural or delayed hemorrhage. Mean ICP rapidly decreased from 33.4 to 13 cmH<sub>2</sub>O at 1 hour (p < 0.0001) and to 9 cmH<sub>2</sub>O (p < 0.0001) at 36 hours post eShunt placement.

**Conclusion** These early encouraging results of the eShunt implant suggest clinical role and utility in the management of subarachnoid hemorrhage associated hydrocephalus possibly eschewing the need for VP shunt surgery and enabling minimally invasive CSF diversion in patients requiring dual anti-platelet or anticoagulant therapy.

**Disclosure of Interest** A. Malek and C. Heilman are co-founders, shareholders, investors, and consultants to CereVasc Inc.