1.2 HAEMORRHAGIC – Brain AVM/AVF, spinal vascular malformations

DURAL ARTERIOVENOUS FISTULAS WITH COGNITIVE IMPAIRMENT: ANGIOGRAPHIC CHARACTERISTICS AND TREATMENT OUTCOMES

O18/172

Sebastian Sanchez, 1Linder Wendt, 2Minako Hayakawa, 3Santiago Ortega-Gutierrez, 1Andres Gutino, 1Katherine Guijar-Falcon, 1Chin-Jen Chen, 2Jason Sheehan, 3Louis Kim, 2Isaac Josh Abecasis, 2Michael Levitt, 2Michael Meyer, 2Richima Guniganti, 2Akash Karsagran, 3Giuseppe Lanzino, 3Enrico Giordan, 1Waided Brijikji, 3Diederik Butlers, 1Andrew Durning, 2W Christopher Fox, 3Jessica Smith, 2Adam Polikak, 2Bradley Gross, 1Sepideh Ami-Hanjani, 2All Alaraj, 2Amanda Kwansicki, 2Robert Starke, 3Stephanie Chen, 3Marc C van Dijk, 2Adriane Potioger, 3Junichiro Satomi, 2Yoshiteru Tada, 3Ryan Phillips, 2Adib Abla, 2Ethan Winkler, 2Rose Du, 2Pui Man Rosalind Lai, 3Gregory Zipfel, 1Colin P Derdeyn, 3Edgar Samaianegro, 3The University of Iowa, Neurology, Iowa City, USA; 1Institute for Clinical and Translational Science, Biostatistics, Iowa City, USA; 2The University of Iowa, Radiology, Iowa City, USA; 3The University of Iowa, Neurology, Radiology and Neurosurgery, Iowa City, USA; 2The University of Texas Health Science Center at Houston, Neurosurgery, Houston, USA; 2UVA University Hospital, Neurosurgery, Charlottesville, USA; 1University of Washington, Neurosurgery, Seattle, USA; 2Washington University in St. Louis, Neurosurgery, St. Louis, USA; 2Washington University in St. Louis, Radiology, St. Louis, USA; 2Mayo Clinic, Neurosurgery, Rochester, USA; 2Mayo Clinic, Radiology, Rochester, USA; 1University Hospital Southampton, Neurosurgery, Southampton, UK; 2Mayo Clinic, Neurosurgery, Jacksonville, USA; 2University of Florida, Neurosurgery, Gainesville, USA; 2University of Pittsburgh, Neurosurgery, Pittsburgh, USA; 2University of Illinois Chicago, Neurosurgery, Chicago, USA; 1University of Miami, Neurosurgery, Miami, USA; 2University of Groningen, Neurosurgery, Groningen, Netherlands; 1Tokushima University Hospital, Neurosurgery, Tokushima, Japan; 2University of California, San Francisco, Neurosurgery, San Francisco, USA; 2Brigham and Women’s Hospital, Neurosurgery, Boston, USA

Introduction Several small series have described cases of patients with dural arteriovenous fistulas (dAVFs) presenting with rapidly progressively 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.

Methods We analyzed the CONDOR database. CONDOR is an international multicenter database that includes 1077 data points. 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 – Micellaneous

EARLY RESULTS WITH THE ESHUNT IMPLANT IN TREATMENT OF COMMUNICATING HYDROCEPHALUS FOLLOWING SUBARACHNOID HEMORRHAGE

O19/174

Lylyk Pedro, 1Ivan Lylyk, 2Carlos Bleie, 3Estepan Scrivero, 2Pedro Nicolas Lylyk, 4Beneduce Brandon, 3Carl Heilman, 1Adel Malek*, 2Interventional Neuroradiology ENER/ Clínica La Sagrada Familia, Buenos Aires, Argentina; 2CereVasc Inc., Boston, USA; 2Tufts Medical Center, Department of Neurosurgery, Boston, USA

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 cmH2O 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 transcranial venous 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 cmH2O at 1 hour (p<0.0001) and to 9 cmH2O (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 antiplatelet or anticoagulant therapy.

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