haemorrhage. The impact of external ventricular drainage (EVD) for acute hydrocephalus on AVM rebleeding has not been yet reported in the literature.

**Methods** Since 1995, clinical and angiographic data of cerebral AVMs were prospectively collected. In this study, we selected patients harbouring an AVM located in a lateral ventricle discovered by a bleeding. The implication of following factors on rebleeding was analyzed: age, sex, associated aneurysm, nidus size and type, venous ectasia, Spetzler–Martin grade, placement of EVD and side of the drainage.

**Results** Twenty-two patients (mean age 27.9 years) were consecutively treated. Locations of the AVM included the atrium in 13 cases (59.1%), the frontal horn in 12 cases (54.6%) and the occipital horn in 2 cases (9.1%). 9 AVMs (40.9%) interested eloquent areas. The Spetzler–Martin grade was II in 10 cases (45.5%), III in 3 (13.6%), IV in 8 (36.4%) and V in 1 case (4.5%). Associated aneurysms were classified as nidal (2 cases, 9.1%), flow-related (2 cases, 9.1%) and unrelated to the AVM (3 cases, 13.6%). Ten (45.5%) patients developed a secondary hydrocephalus. Five EVD were placed in the ventricle of the AVM and the five other in the contralateral ventricle. The placement of the shunt in the contralateral ventricle was a significant risk factor AVM rebleeding (95% CI: 4.33–10.42, p < 0.005). The presence of an associated aneurysm, diffuse type of the nidus and the placement of EVD seemed to be risk factors for the rebleeding of the AVM.

**Conclusions** The placement of EVD in the opposite side of the AVM significantly increased the risk of rebleeding of the AVM. We recommend the placement of EVD in the side of the AVM even if the obstruction of the shunt could be problematic also as the avoidance of the nidus by the catheter.


**E-056** **PIPELINE ENDOVASCULAR DEVICE FOR THE TREATMENT OF INTRACRANIAL ANEURYSMS AT THE LEVEL OF THE CIRCLE OF WILLIS AND BEYOND: A SINGLE CENTER EXPERIENCE**

1M Martínez-Galdámez, 1I Linfante, 2G Dabus. Interventional Neuroradiology, Hospital Clínico Universitario de Valladolid, Spain; Interventional Neuroradiology and Endovascular Neurosurgery, Baptist Cardiac and Vascular Institute and Baptist Neuroscience Institute, Miami, FL, USA

10.1136/jnns-2014-013433.124

**Introduction** The treatment of intracranial aneurysms at the level of the Circle of Willis and beyond using Pipeline Embolization Device (PED) has been recently approved by the FDA for the treatment of anterior circulation aneurysms at the level of the Circle of Willis and beyond. The aim of our study was to evaluate the safety and efficacy of the Pipeline embolization device for the treatment of anterior circulation aneurysms at the level of circle of Willis and beyond.

**Methods** A consecutive series of 23 patients with unruptured and treated with Pipeline embolization device. Complication rates, aneurysm obliteration, modified Rankin Scale (mRS) outcomes were assessed.

**Results** All devices were placed properly, without technical difficulties.

We found 1 minor clinical event (resolved within 7 days from procedure) and 1 major event (symptoms present after 7 days) (table), and no mortality.

There were no aneurysm rupture or parenchymal haemorrhage during follow-up.

The mRS at 3 and 6 months did not change from prior mRS in all cases but 1.

We had 2 asymptomatic periprocedural ischemic events: 1 perforator stroke in the case of a recanalised A1-A2 where we used 2 PEDs, and 1 lacunar stroke. Both cases were discovered incidentally at the control CT predischarge.

We had 3 intraprocedural complications, resolved without clinical consequences: 1 acute branch occlusion during hypotension state which was solved after TA raise (case 4), 1 slow opacification of the inferior trunk of MCA resolved with intraarterial bolus of reopro (case 20), and 1 focal SAH secondary to distal perforation with the microwire during and exchange manoeuvre which was resolved with coil occlusion and glue at the level of the perforation, with no symptoms (case 4).

Six-month follow-up angiograms were obtained in 16 aneurysms, showing complete occlusion in 7 and significantly decreased residual filling in 7.

5 cases are still pending on 6 months DSA and 1 case showed residual filling at the 3 months follow-up.

Potency of PEDs embolization of branches differentiating from the aneurism sacs were evaluated by digital subtraction angiograms respectively.

All PEDs were patent, but we had 1 intrastent stenosis at 6 months DSA where only 1 symptomatic case (an angioplasty was done successfully).

In the branches evaluated, 7 were patent, 2 moderate reduced and 2 branches were occluded asymptomatically.

**Conclusion** The use of EVD provides a safe and effective solution for aneurysms at and beyond the circle of Willis. Preliminary results are promising but a series with longer-term follow-up examinations are required to show the long-term safety and durability of this treatment alternative.

**Disclosures** M. Martínez-Galdámez: 2; G. Dabus: None. I. Linfante: None; G. Ciccio: None; R. Fahed: None; H. Redjem: None.
between groups 1 and 2 (1.98 vs. 2.43 sec, \( p = 0.005 \)), M1-TTP25-00 (1.78 vs. 2.7 sec, \( p = 0.003 \)) and in M1-TT100– (4.68 vs. 6.27 sec, \( p = 0.012 \)) respectively. Similar differences were observed in A1; A1-TTP0-100 (1.84 vs. 2.18 sec, \( p = 0.001 \)), A1-TTP25-100, (1.63 vs. 2.27 sec, \( p = 0.001 \)) and in A1-TT100-10 (4.24 vs. 5.12 sec, \( p = 0.001 \)) and in M2 region; M2-TTP0-100, (2.03 vs. 2.64 sec, \( p = 0.001 \)), M2-TTP25-100, (1.83 vs. 2.8 sec, \( p = 0.001 \)) and in M2-TT100-10 (4.68 vs. 6.2 sec, \( p = 0.012 \)) (Figures 2 and 3).

Conclusion The DSA TT showed significant correlation with H&H grade. TT delays appear to be independent of increased intracranial pressure and may be an indicators of decreased cerebral perfusion in patients with higher H&H grade. The method may serve as an indirect technique for cerebral blood flow assessment in the angiography suite.

Disclosures A. Ivanov: None. C. Hsu: None. A. Linninger: None. S. Amin-Hanjani: None. V. Aletich: 2; C; Covedien, Codman. F. Charbel: None. A. Alaraj: None.