

increase and TI. Comparison of VBD formation between groups was performed using Fisher's exact test.

Results Successful VBD induction was noted in 67% (18 of 27) C57BL/6 J strains vs 0% (0 of 19) in SV129 strains ($P < 0.001$). VBD was not observed in sham-operated controls. No effect was seen as a function of duration. Both TI and diameter increase for BA were greater in the C57BL/6 J strain compared to SV129 strain (56.3 ± 16.4 vs 21.1 ± 21.6 for diameter, 17.4 ± 7.6 vs 10.4 ± 3.8 for TI). Expression of pro- and active MMP 2 and -9 were elevated in elastase-injected C57BL/6 J animals compared to corresponding controls as well elastase-injected SV129 animals. C57BL/6 J subjects demonstrated arterial wall remodeling characterized by internal elastic lamina disruption, muscular layer discontinuity, inflammatory cell infiltration and high matrix metalloproteinases expression in the media.

Conclusion C57BL/6 J mice demonstrated greater susceptibility to VBD induction than SV129 mice.

Disclosures Y. Zhu: None. H. Xing: None. D. Dai: None. D. Kallmes: None. R. Kadirvel: None.

0-039 COMPARISON OF THE MEDIUM-TERM OUTCOME OF TWO DIFFERENT METHODS FOR THE CEMENT AUGMENTATION OF INSUFFICIENCY FRACTURES OF THE SACRUM

¹R Andresen, ²S Radmer, ³J Andresen, ⁴H Schober. ¹Westkuestenkl. Heide, Acad. Teach. Hospital of the Universities of Kiel, Luebeck and Hamburg, Institut für Diagnostische und Interventionelle Radiologie/Neuroradiologie, Heide, Germany; ²Center for Orthopaedics, Berlin, Germany; ³Werner Heisenberg high school, Heide, Germany; ⁴Municipal Hospital Suedstadt Rostock, Academic Teaching Hospital of the University of Rostock, Department of Internal Medicine I, Rostock, Germany

10.1136/neurintsurg-2016-012589.39

Introduction The objective of this prospective, randomized study was to test the feasibility and the clinical outcome of the different forms of treatment.

Material and methods In 40 patients with a total of 57 sacral fractures, cement augmentation was performed with CT-guidance by means of balloon sacroplasty (BSP) or radiofrequency sacroplasty (RFS). For BSP, the balloon catheter was inflated and deflated in the fracture zone, and the hollow space created was then filled with PMMA cement. For RFS, a flexible osteotome was initially used to extend the spongy space in the fracture zone. The highly viscous PMMA cement, activated by radiofrequency, was then inserted into the prepared fracture zone. Pain intensity was determined on a visual analogue scale before the intervention, on the second day, and 6, 12 and 18 months after the intervention. The results were tested for significance by means of paired Wilcoxon rank-sum tests and Mann-Whitney U tests.

Results BSP and RFS were technically feasible in all patients. An average of 6.3 ml cement per fracture were inserted in the BSP group and an average of 6.1 ml per fracture in the RFS group. Leakage could be ruled out for both procedures. The mean pain score on the VAS before the intervention was 8.6 ± 0.55 in the BSP group and 8.8 ± 0.58 in the RFS group. On the second postoperative day, a significant pain reduction was seen ($p < 0.001$), with an average value of 2.5 (BSP ± 0.28 , RFS ± 0.38) for both groups. After 6 (12; 18) months, these values were stable for the BSP group at 2.3 ± 0.27 (2.3 ± 0.24 ; 2.0 ± 0.34) and for the RFS group at 2.4 ± 0.34 (2.2 ± 0.26 ; 2.0 ± 0.31). With regard to pain,

exceedance probability values of $p = 0.86$ (6 months) and $p = 1$ (18 months) were seen, so that neither treatment method leads to differences in results.

Conclusion BSP and RFS are interventional, minimally invasive procedures that enable reliable cement augmentation and achieve equally good clinical outcomes in the medium term.

Disclosures R. Andresen: None. S. Radmer: None. J. Andresen: None. H. Schober: None.

0-040 WOVEN ENDOBRIDGE DEVICE IN TREATMENT OF ENDOVASCULAR ANEURYSMS: A META-ANALYSIS

¹W Brinjikji, ¹S Asnafi, ¹A Rouchaud, ²L Pierot, ¹D Kallmes. ¹Radiology, Mayo Clinic, Rochester, MN; ²Radiology, Hôpital Maison Blanche, REIMS, France

10.1136/neurintsurg-2016-012589.40

Background and purpose We performed a meta-analysis of existing literature on the Woven EndoBridge (WEB) device in treatment of intracranial aneurysms.

Method A comprehensive literature search of the databases PubMed, Ovid MEDLINE and Ovid EMBASE was designed and conducted by an experienced librarian with input from the authors. We extracted the information including aneurysm rupture status, mean aneurysm size, mean aneurysm neck size, length of clinical follow-up, and length of angiographic follow-up. Outcomes studied included immediate and long-term (>3 month) angiographic outcomes (complete occlusion, as well as adequate occlusion defined as complete occlusion or neck remnant), aneurysm retreatment, intraoperative rupture, perioperative morbidity and mortality, thromboembolic complication, and treatment failure. The meta-analysis was performed with the statistical package Comprehensive Meta-Analysis.

Results A total of 14 studies were included in this analysis, including 543 patients with 557 aneurysms, of which 127 were ruptured. Treatment failure occurred in 3% of cases (95% confidence interval [CI], 2%–5%). Perioperative morbidity and mortality rates were 5% (95% CI, 2%–7%) and 1% (95% CI, 0%–2%), respectively. Initial complete occlusion rates and adequate occlusion rates were 27% (95% CI, 15%–39%) and 58% (95% CI, 36%–79%), respectively. Complete occlusion and adequate occlusion rates at follow-up were 39% (95% CI, 26%–52%) and 80% (95% CI, 75%–85%), respectively.

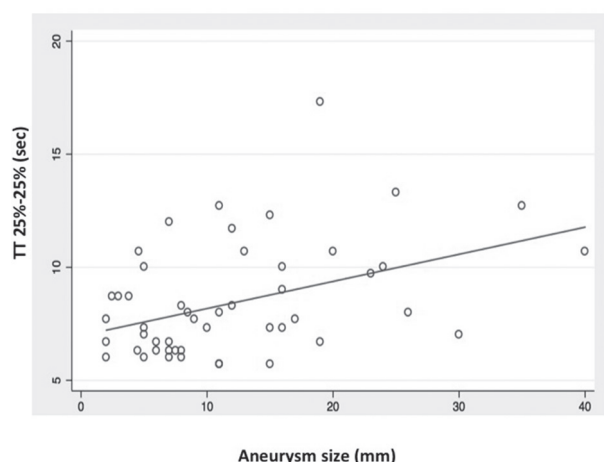
Conclusions Early data suggests that WEB treatment has an excellent safety profile and promising rates of adequate occlusion, especially given the complexity of aneurysms treated. Further prospective clinical registries and trials are needed to confirm these results and better define the risks and benefits of the use of the WEB device in treatment wide-necked and wide-neck bifurcation aneurysms.

Disclosures W. Brinjikji: None. S. Asnafi: None. A. Rouchaud: None. L. Pierot: 1; C; Sequent. D. Kallmes: 1; C; Sequent.

0-041 THE ANEURYSM SIZE AND WINDKESSEL EFFECT: A CONTRAST TRANSIT TIMES STUDY ON DIGITAL SUBTRACTION ANGIOGRAPHY

¹A Hussein, ²A Linninger, ¹F Charbel, II, ³C Hsu, ¹F Charbel, ¹V Aletich, ¹A Alaraj. ¹Neurosurgery, University of Illinois at Chicago, Chicago, IL; ²Neurosurgery, Bioengineering, University of Illinois at Chicago, Chicago, IL; ³Bioengineering, University of Illinois at Chicago, Chicago, IL

10.1136/neurintsurg-2016-012589.41

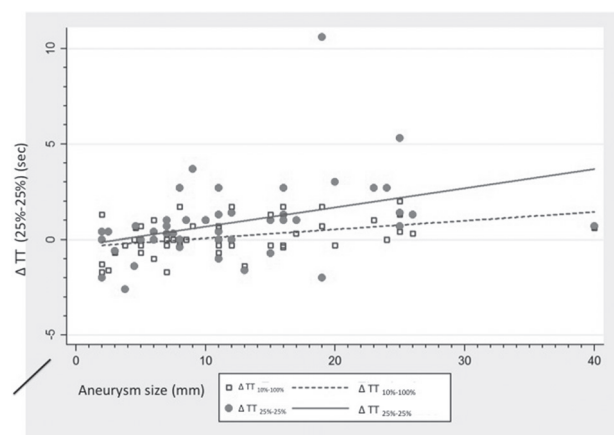


Abstract O-041 Figure 1

Introduction Treatment of large and giant intracranial aneurysms are often associated with larger complications rates, related to hemodynamic changes of intracranial flow distal to the intracranial aneurysms. In this paper we evaluated the baseline contrast transit times on angiography for patients with proximal anterior circulation aneurysms.

Methods Medical charts and digital subtraction angiographic (DSA) films for patients with intracranial aneurysms were reviewed. Only proximal, unruptured anterior circulations aneurysms were included. DSA images were analyzed over M1 segment, using custom made software for the time-density. Analysis included $TT_{10\%-100\%}$ (time needed for the contrast to change from 10%–100% image intensity), $TT_{100\%-10\%}$ (time needed for the contrast to change from 100%–10% image intensity), and $TT_{25\%-25\%}$ (time needed for the contrast to change from 25%–25% image intensity). This was compared to the contralateral M1 transit times.

Results A total of 50 patients were included in this study. Aneurysm size ranged from 2–40 mm, mean 12 mm. Analysis over the M1 segment showed a significant increase in the $TT_{25\%-25\%}$ (7.6 to 8.46 seconds, $P = 0.006$) compared to the contralateral side. There was significant correlation (Spearman's correlation) between the $TT_{10\%-100\%}$, the $TT_{25\%-25\%}$ and the aneurysm size ($\rho = 0.291, 0.362$ and $P = 0.041, 0.01$ respectively) (Figure 1), indicating a slower contrast time



Abstract O-041 Figure 2

in larger aneurysms. Similarly, there was significant correlation between the absolute difference between the ipsilateral and contralateral TTs and aneurysm size ($TT_{10\%-100\%} : P = 0.005, \rho = 0.393$; $TT_{25\%-25\%} : P < 0.001, \rho = 0.52$) (Figure 2).

Conclusion Our analysis shows that statistically significant difference in the intracranial contrast TT as a function of proximal aneurysm size. The mechanism for this might be related to the Windkessel effect where the aneurysm as a blood reservoir in systole and partially release the contrast in diastole. Changes to this baseline phenomenon might contribute to complications post flow diverters implementation.

Disclosures A. Hussein: None. A. Linninger: None. F. Charbel, II: None. C. Hsu: None. F. Charbel: 2; C; Transonic. 4; C; VasSol Inc. V. Aletich: 2; C; Codman. A. Alaraj: 2; C; Codman.

0-042 FUNCTIONAL OUTCOME PREDICTION MODEL FOR CAROTID STENTING PATIENTS USING ADMISSION PROFILES: 29,453 PATIENTS USING NIS DATA 2005 TO 2013

¹S Park, ²M Alexander, ³A Rosengart. ¹Neuroscience, Albany Medical Center, Albany, NY; ²Neurosurgery, Cedars-Sinai Medical Center, Los Angeles, CA; ³Neurology, Cedars-Sinai Medical Center, Los Angeles, CA

10.1136/neurintsurg-2016-012589.42

Introduction Carotid stenting (CAS) has been widely used since the seminal CREST trial, demonstrating equivalent results to carotid endarterectomy (CEA). With normal surgical risk patients having symptomatic or asymptomatic carotid artery disease, CAS and CEA, in qualified hands, have comparable outcomes, but patient-specific risk factors to estimate functional outcome were poorly studied. In practice, the choice between CEA and CAS is based on lesion anatomy and preference of patient and surgeon rather than considering defined risk factors associated with unfavorable outcome. We aimed to determine medical risk factors for poor functional outcome after CAS using the Healthcare Cost and Utilization Project Nationwide Inpatient Sample database (NIS) and formulate outcome prediction model to estimate unfavorable functional outcome.

Methods We included 29,453 patients (age $> \geq 18$) with symptomatic and asymptomatic carotid artery disease from 2005 to 2013, who underwent CAS using ICD-9 procedure code and diagnosis code for chronic and acute comorbidity as well as administration data including social economic and demographic profiles. Applying the non-parametric Jonckheere-Terpstra test, Multiple logistic regression, and multiple linear regression analyzes (SAS 9.4; SPSS 22) to formulate outcome prediction model using covariates for (1) Socio-economic status; age, sex and race, (2) chronic comorbidities; hypertension, diabetes mellitus, hyperlipidemia, coronary artery disease, congestive heart failure, atrial fibrillation/flutter, COPD, chronic kidney disease, aortic/visceral/peripheral atherosclerosis, tobacco/alcohol dependence and morbid obesity, (3) care complexity; number of comorbidities, numbers of inpatient diagnosis/ procedures and (4) Acute comorbidities; acute myocardial infarct, acute kidney failure, pneumonia, acute respiratory failure and sepsis. We compared outcome markers which were defined as (1) procedure related stroke, (2) mortality, and (3) functional outcome based on discharge disposition; long term facility or not. Care complexity and acute comorbidities were also considered for outcome analysis without utilization for