under standard conditions, with a mean concentration of 0.126×10^6 cells/mL and 97.9% (±1.7%) viability. Injection velocity ranged from 1.01 to 73.17 cc/min, with no significant difference in cell count or viability. The same result was seen in either tortuous or straight microcatheter configurations. Cell count and viability did not change significantly when the hMSC in solution was stored for up to 5 hours on ice or mixed with Omnipaque, verapamil, and heparin. Notably, anti-glioma activity was maintained after microcatheter infusion.

Conclusions BM-hMSCs are compatible with a wide variety of commonly used neuroendovascular microcatheters and medications. Stem cell viability and viral agent activity do not appear to be affected by catheter configuration or injection velocity. Commercially available microcatheters can be used to deliver IA stem cell neurotherapeutics.

Disclosures V. Srinivasan: None. **J. Gumin:** None. **K. Camstra:** None. **S. Chen:** None. **J. Johnson:** None. **F. Lang:** None. **P. Kan:** 2; C; Stryker, Medtronic, Cerenovus.

O-033 POST-EMBOLIZATION CONTRASTED MRI ENHANCEMENT OF MENINGIOMAS IS A GREATER PREDICTOR OF INTRAOPERATIVE BLOOD LOSS THAN ANGIOGRAPHY

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10.1136/neurintsurg-2019-SNIS.33

Objective Pre-operative embolization of meningiomas remains controversial. Prior studies have shown that the degree of devascularization on angiography is not significantly correlated with intraoperative blood loss. This study examines pre and post-embolization MRI enhancement as an improved metric for assessing the degree of embolization.

Methods We retrospectively analyzed patients who underwent preoperative embolization for intracranial meningiomas at the Barrow Neurological Institute from 2007 to 2017. Two cohorts were analyzed based on the degree of devascularization observed (>/= 50% vs. <50%).

Results 84 meningioma patients underwent preoperative embolization. 35 (42%) had post-embolization MR imaging prior to surgical resection. The mean lesion diameter was 4.9 cm (±1.3) and, intraoperatively, the mean blood loss was 576 ml (±341). Based on MR imaging, angiography overestimated devascularization in 22 patients (63%). 17 (49%) patients were found to have a >/= 50% decrease enhancement on contrasted post-embolization MRI which was associated with lower mean intraoperative blood loss [444 ml vs. 700 ml in 17 patients with <50% devascularization (p=0.025)]. On angiography, 22(63%) patients demonstrated >/= 50% devascularization during embolization. These patients did not statistically differ in intraoperative blood loss as compared to those with <50% devascularization on angiography. On univariate analysis, patients with <50% decrease in enhancement on contrasted post-embolization MRI had 9 times greater odds of having at least 500 cc of intraoperative blood loss during resection (CI 1.6–54, p=0.012). Additionally, on multivariate stepwise logistic regression analysis <50% decrease enhancement on contrasted post-embolization MRI was found to be a predictor of at least 500 cc of blood loss (OR 9.4, p =0.012), but <50% devascularization on angiography was not.

Conclusion Post-embolization contrasted MRI is a better predictor of intraoperative blood loss during meningioma resection than post-embolization angiography, which overestimates the degree of devascularization.

Disclosures J. Catapano: None. **C. Pryzbylowski:** None. **A. See:** None. **A. Whiting:** None. **M. Labib:** None. **N. Rubel:** None. **V. Fredrickson:** None. **A. Ducruet:** None. **F. Albuquerque:** None. **N. Sanai:** None.

O-034 THROMBECTOMY FOR ACUTE ISCHEMIC STROKE IN NONAGENARIANS COMPARED TO OCTOGENARIANS

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10.1136/neurintsurg-2019-SNIS.34

Introduction Recent landmark randomized clinical trials have demonstrated that endovascular thrombectomy (EVT) leads to improved outcomes in patients with acute ischemic stroke (AIS) due to large vessel occlusion (LVO). Although elderly patients were excluded from several of these initial trials, the available data suggests a benefit of EVT in octogenarian patients with AIS due to LVO. However, the efficacy of EVT in the nonagenarian patient population remains uncertain.

Methods We performed a retrospective cohort study of a prospectively-maintained stroke database at a single comprehensive stroke center. Inclusion criteria were: age 80–99 years, LVO, core infarct <70mL on perfusion imaging, and presence of a salvageable penumbra. Patients were stratified based on age into octogenarian (age 80–89) and nonagenarian (age 90–99) cohorts. Primary outcome was ordinal score on the modified Rankin Scale (mRS) at 90 days. Secondary outcomes included dichotomized functional outcome (mRS≤2 versus mRS≥3), successful revascularization, symptomatic reperfusion hemorrhage and mortality.

Results 108 patients met inclusion criteria, including 79 octogenarians (73%) and 29 nonagenarians (27%). Mean octogenarian age was 84.2 years (SD 2.8) versus 92 years (SD 2.3) in nonagenarians. Nonagenarians were more likely to be female (86% versus 58%; p<0.01); there were no other differences between the groups in terms of demographics, medical comorbidities, pre-treatment clinical variables, or endovascular treatment characteristics. Median mRS at 90 days was 5 (IQR 3–6) in octogenarians and 6 (IQR 4–6) in nonagenarians (p=0.09). Independent functional status (mRS≤2) at 90 days was achieved in 13% of nonagenarians and in 20% of octogenarians (p=0.54). Successful revascularization (TICI 2b-3) was achieved in 79% in both the octogenarian and nonagenarian cohorts (p=1). Symptomatic reperfusion hemorrhage occurred in 21% of nonagenarians and in 6% of octogenarians (p=0.03). The 90-day mortality rate was 63% in nonagenarians versus 41% in octogenarians (p=0.07).

Conclusions Nonagenarian patients undergoing EVT for AIS due to LVO are at significantly higher risk of symptomatic reperfusion hemorrhage compared with octogenarians, despite similar stroke- and treatment-related factors. While there was a strong trend towards higher mortality rates and worse long-term functional outcomes in nonagenarians, the difference was not statistically significant in this relatively small retrospective study. Additional prospective and randomized studies are necessary to evaluate the efficacy of EVT in elderly patients, including nonagenarians.