

strategies of interventional pain management, neuroradiology, and conventional spine surgery, it is now feasible to treat spinal axial pain using permanent fixation techniques and local anesthesia in the setting of a fluoroscopy suite using mild sedation and local anesthesia.

**Methods** The author presents a series of percutaneous thoracolumbar fusion procedures performed in a biplane neuroangiographic suite and without general anesthesia for the treatment of spondylitic pain. All procedures utilized pedicle screw fixation, harvesting of local bone autograft, and application of bone fusion material.

**Results** In this series of 13 patients, a statistically significant reduction of pain was seen at both the 2 week post-operative timepoint, as well as at the time of longest follow-up (mean 40 weeks). Specifically, axial spine pain as rated by the Visual Analog Scale was reduced from a preoperative mean level of 7.827 to a level of 4.000 at 2 weeks, and a level of 2.192 at longest follow-up. Five of the 13 patients were still taking narcotic medications for axial spine pain at the point of longest follow-up.

**Discussion** The advanced and rapid imaging capabilities afforded by a neuroangiographic biplane suite can be safely combined with percutaneous fusion techniques so as to allow for fusion therapies to be applied to patients where the avoidance of general anesthesia is desirable. Expanding instrumented fusion procedures into a non-traditional operating room setting requires sensitivity towards the inherent cultural differences between angiography suites and operating theaters in order to ensure sterility and best patient outcomes.

**Disclosures** B. Chopko: 2; C; Vertos Medical, Bacterin International.

#### E-076 INTRAVASCULAR ULTRASONOGRAPHY FOR CEREBROVASCULAR INTERVENTION

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**Purpose** We want to share our limited, but unique experience on the use of intravascular ultrasonography (IVUS) for the cerebrovascular intervention and discuss its feasibility and usefulness.

**Methods** A retrospective image and medical record review was completed for the patients who underwent IVUS during various cerebrovascular intervention. Image findings with the IVUS and angiography were compared and recorded at the time of the procedure. The diameter of the vessel and the lesion, feature of the stent apposition and in-stent environment and complications were reviewed.

**Results** Seventeen IVUS cases were enrolled for the current study. The IVUS was performed in 11 cases of stent angioplasty: 5 cases of extracranial carotid artery, 2 for orifice of vertebral artery (V1), 1 for extracranial vertebral artery (V2) and 3 intracranial arteries (V4, basilar artery and petrous ICA). And 4 diagnostic cerebral angiographies and 2 follow-up angiographies of stents were carried out with IVUS. For the carotid artery stenting (CAS), the IVUS revealed hyperacute in-stent thrombosis which was invisible on angiography because they were judged as severe and unstable stenosis on IVUS. Intracranial and vertebral artery orifice stenosis were treated with stent angioplasty safely with guidance of IVUS. It

was helpful for deciding the size of the the stents and limitation of post-dilation with balloon catheters. And IVUS revealed a severe stenosis with vulnerable plaque of vertebral artery orifice which seemed to be moderate stable stenosis on diagnostic angiography. The other diagnostic IVUS findings were in the semblance of angiographic findings. Follow up IVUS for the stents showed mild in-stent restenosis.

**Conclusion** IVUS in cerebrovascular intervention could provide valuable information about the intravascular environment which was not available on conventional angiography. This information could affect the treatment strategy or give concrete evidence for the further treatment for each lesion.

**Disclosures** W. Yoon: None.

#### E-077 REDUCTION IN RADIATION EXPOSURE DURING INTERVENTIONAL NEURORADIOLOGY PROCEDURES IN A MODERN BIPLANE ANGIOGRAPHIC SYSTEM

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**Objective** To evaluate patient exposure to radiation during common interventional neuroradiology procedures performed with a recent Flat Panel Detector (FPD) angiographic system and compare to recently published values.

**Method** All consecutive patients from February 2015 to November 2015, who underwent cerebral diagnostic angiogram or Intervention, including embolization of arteriovenous fistula, arteriovenous malformation, aneurysms, stroke mechanical thrombectomy and other types of interventional procedures, on two modern FPD angiographic biplane systems (Innova IGS 630, GE Healthcare, Chalfont St Giles, UK), were retrospectively analyzed. Dose-area product (DAP), cumulated Air Kerma (CAK) per plane, fluoroscopic time (FT) and total number of Digital Subtracted Angiography (DSA) frames were collected and analyzed for each category. Results are expressed as median (interquartile range). The data was compared with previously published literature on other modern FPD systems only.

**Results** 755 consecutive cases were performed in our institution, including 398 cerebral angiograms, 33 AVF/AVM embolizations, 71 aneurysm embolizations, 73 mechanical thrombectomies and 180 Other Interventions.

The DAP (Gy.cm<sup>2</sup>), Frontal and Lateral CAK (Gy), FT (min) and total number of DSA frames were as follows: 43 (33–60), 0.26 (0.19–0.33), 0.09 (0.07–0.13), 5.6 (4.2–7.5), 245 (193–314) for Cerebral Diagnostic and 66 (41–110), 0.46 (0.25–0.80), 0.18 (0.10–0.30), 18.3 (9.1–30.2), 281 (184–427) when combining all interventional cases.

Radiation data is summarized in Table 1, as well as published reference levels.

**Conclusion** Our diagnostic group had a lower median and in the 75 th percentile of DAP and fluoroscopy time, when compared with published literature, with the number of DSA frames comparable.

In our intervention group, both DAP and number of DSA frames were significantly lower than values reported in the literature, despite a higher fluoro time. The sub-group analysis by procedure type also revealed a lower or comparable DAP.