One of the primary concerns following endovascular aneurysm treatment is recurrence, and close imaging followup is often required. High resolution MRI is being employed in an increasingly wide variety of pathologies, but its use as a surveillance tool following flow diversion has not been extensively explored. We present three cases where high resolution MRI was performed following flow diversion for intracranial aneurysms and discuss its utility in this patient population.

Abstract E-073 Table 1

MRI sequence parameters					
MRI sequence	**TR/TE (ms)**	**FOV (mm^2)**	**Matrix**	**Thickness (mm)**	**Scan time (min:sec)**
3D TOF	22/3.6	200x181	384x331	0.5	6:50
3D DANTE T1w BB SPACE	800/21	162x162	196x192	0.8	5:47
3D T2w BB SPACE	1000/118	200x200	384x380	0.5	4:18

Disclosures J. Guan: None. **S. McNally:** None. **A. de Havenon:** None. **P. Tuassky:** 2; C; Covidien. **S. Kim:** None. **M. Park:** None.

E-074 AN ANALYSIS TO FINAL DIAGNOSIS IN CEREBROVASCULAR ACCIDENT (CVA) PROTOCOL ACTIVATION PATIENTS: SINGLE CENTER STUDY

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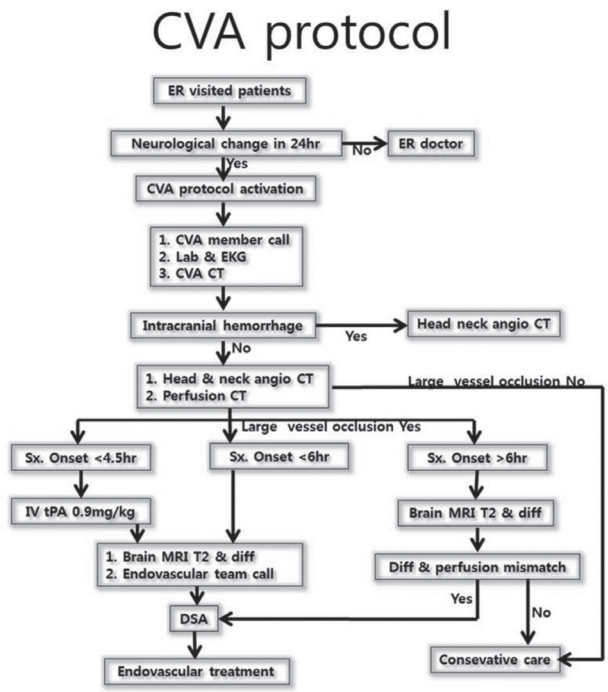
Introduction The cerebrovascular accident(CVA) is a disease that can result in life threatening or permanent neurologic sequelae. Although CVA is a world-wide problem, the burden of CVA is particularly serious in Asia; its mortality is higher than in Europe or North America. For patients with CVA occurrence for quick diagnosis and treatment of the CVA protocol, we have many hospitals are trying to maintain the life of patients without neurological sequelae and rapid treatment. The classification of patients is made to only initial patient questionnaire in this protocol. The cases that are often mistaken for CVA have occurred. This study was conducted for determine the method for more accurate patients classification and then to reduce the misdiagnosis.

Methods The authors conducted a retrospective analysis of CVA protocol activation patient data that were collected at Incheon St. Mary's hospitals over a 8 year period (from January 2008 to July 2015).

The authors were reviewed for CVA protocol activation patients with early symptoms, radiologic image study, lab finding, electronic medical record(EMR) and including the final diagnosis for the patient through the EMR. The diagnosis was classified as a acute CVA such as cerebral infarction, transient ischemic attack (TIA), intracerebral hemorrhage (ICH), intraventricular hemorrhage (IVH), subarachnoid hemorrhage(SAH), arteriovenous malformation (AVM) and diseases that can be confused with this disease such as brain tumor, seizure, traumatic intracranial hemorrhage, medical problem (i.g hyponatremia, pneumonia, myocardial infarction, hypoglycemia), drug abuse, peripheral neuropathy, spinal problem, neuromuscular disease, psychiatric problem.

Results In total, 2191 patients met the inclusion criteria of this study. These patients were diagnosed with cerebral infarction (1187, 54.17%), TIA (241, 10.99%), ICH (376, 17.16%), SAH (134, 6.11%), AVM (10, 0.45%), IVH (4, 0.18%), brain tumor (22, 1.00%), traumatic hemorrhage (75, 3.42%), medical problem (31, 1.41%), seizure (22, 1.00%), drug abuse (6, 0.27%), psychiatric disorder (4, 0.18%), peripheral neuropathy (17, 0.77%), neuromuscular disease (5, 0.22%), etc (57, 2.60%).

Conclusions This analysis showed that the 89% of patients in the CVA protocol activation were the acute CVA disease. But, the 11% of patients in the CVA protocol activation were the others disease. Well-trained doctors should be conducted initial history taking and accurate neurological examination for reduce to misdiagnosis. And then, we could achieve a cost effective rapid treatment.



Abstract E-074 Figure 1

Disclosures B. Moon: None. **S. Park:** None. **K. Jang:** None. **D. Jang:** None.

E-075 PERCUTANEOUS THORACOLUMBAR DECOMPRESSION COMBINED WITH PERCUTANEOUS PEDICLE SCREW FIXATION AND FUSION: A METHOD FOR TREATING SPINAL DEGENERATIVE PAIN IN A BIPLANE ANGIOGRAPHY SUITE WITH THE AVOIDANCE OF GENERAL ANESTHESIA

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Objective Spondylytic degeneration of the axial lumbar spine is a major cause of pain and disability. Recent advances in spinal surgical instrumentation, including percutaneous access and fusion techniques, have made possible the performance of instrumented fusion through small incisions. By blending

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 spondylytic 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^2), Fontal 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.