Poster 26

**Total Intravenous Anesthetic for Posterior Thoracolumbar Fusion Increases Risk of Postoperative Ileus Compared to Inhaled Anesthetic**

*Sherrod Brandon, MD1, Kim Robert, MD1, Hunsaker Joshua, BS1, Rada Courtney, BS1, Christensen Clint, MD2, Brodke Darrel, MD3, Mazur Marcus, MD2, Bisson Erica, MD2, Dailey Andrew4*

1 Department of Neurosurgery, Clinical Neurosciences Center, University of Utah, Salt Lake City, Utah, United States, 2 University of Utah, Salt Lake City, Utah, United States, 3 University of Utah, Salt Lake City, Utah, United States, 4 Department of Neurosurgery, University of Utah Health Care, Salt Lake City1, Utah, United States

**Background/Introduction:** Postoperative ileus is common after posterior thoracolumbar spinal fusion (PSF) and carries significant associated morbidity. Although prior studies have identified multiple risk factors for development of ileus, no study to our knowledge has directly compared ileus rates between patients receiving inhaled anesthetic versus total intravenous anesthetic (TIVA) for PSF despite TIVA’s increasing prevalence.

**Materials/Methods:** Retrospective single-institution cohort study of all patients undergoing PSF from May 2014 to December 2020. Patients undergoing both orthopedic and neurosurgical PSFs were included. Postoperative ileus was defined using radiographic and/or clinical diagnoses (using postoperative radiographs, abdominal CT, ICD-9 or ICD-10 codes for postoperative ileus). The use of TIVA or inhaled anesthetic was captured from the anesthesia record. Exclusion criteria included patients undergoing anterior approach procedures and patients who had a concurrent abdominal procedure in the same admission (unless required due to pre-existing postoperative ileus).

**Results:** Of 3,451 patients meeting inclusion criteria undergoing PSF, 283 (8.2%) had a radiographic and/or clinical postoperative ileus. Mean (± SD) age at admission of ileus patients was 59.3 ± 15.8 years, 155 (54.8%) ileus patients were male, mean length of stay was 7.7 ± 5.0 days, and mean anesthesia time was 6.0 ± 2.2 hours. Ileus patients had a greater number of levels fused (44% 5+ levels fused vs. 25%, p<0.001). Of the 283 patients with ileus, 187 (66.1%) were orthopedic and 96 (33.9%) were neurosurgical patients. Patients with ileus were more likely to have received TIVA (166 [58.7%] vs. 117 [41.3%] inhalation only). Neurosurgical patients were more likely to receive TIVA (67.7%) vs. orthopedic patients (54.0%). When analyzing the entire cohort, TIVA patients were more likely to experience postoperative ileus compared to inhalation only patients (10.0% ileus rate vs. 6.5%, p= 0.0009). However, ileus patients underwent longer procedures in the TIVA group (6.2 ± 2.3 hours anesthesia time vs. 5.6 ± 2.2 hours in inhalation group, p=0.032) and had a greater number of levels fused (5+ levels fused: 53% vs. 35%, p=0.003).

**Discussion/Conclusion:** TIVA was associated with higher rate of postoperative ileus compared to inhaled anesthetic. However, these patients also had longer operations and greater number of levels fused.