

Novel ERAS Pathway Significantly Reduces Length of Stay in AIS Patients Undergoing Posterior Spinal Fusion

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Background:

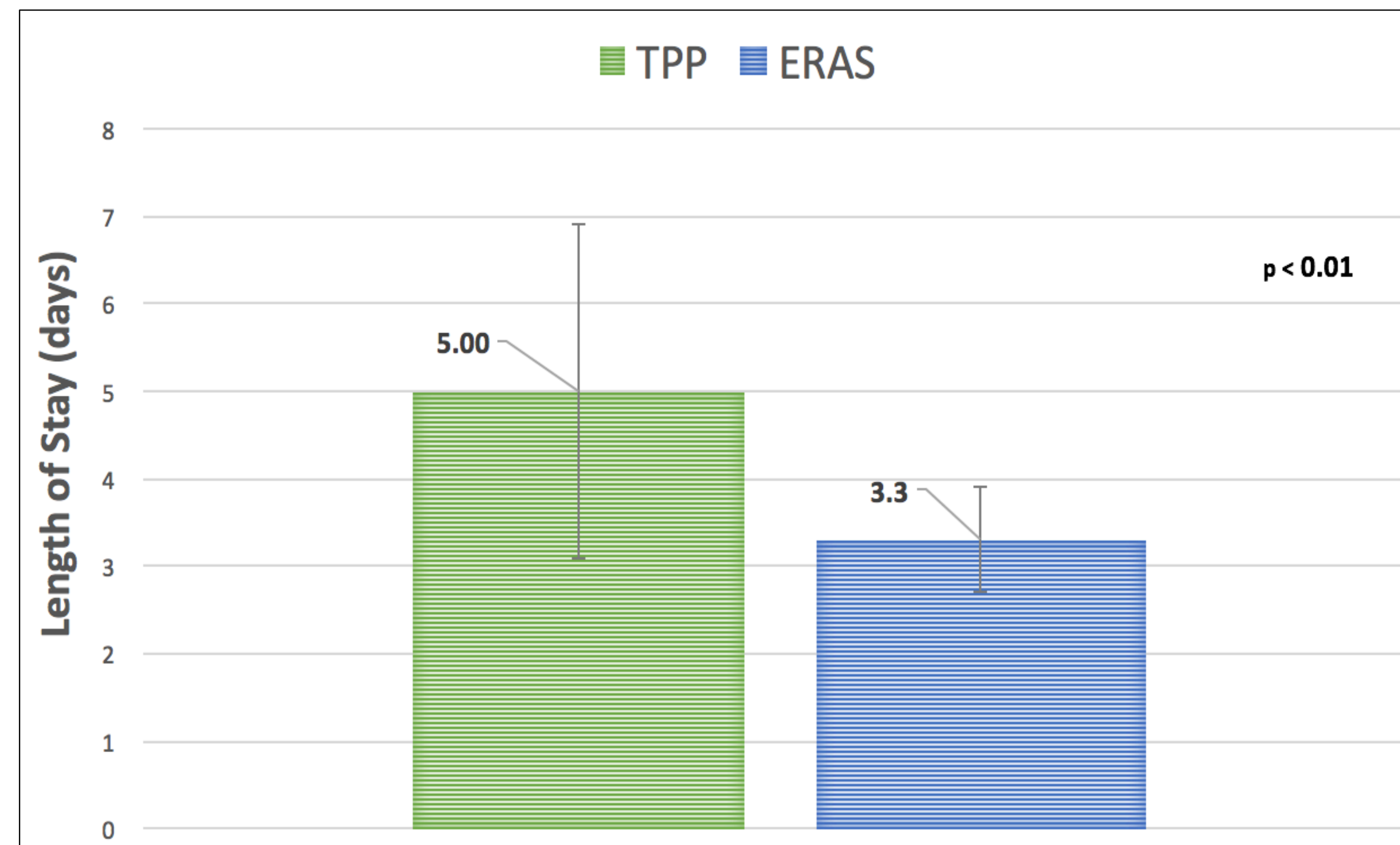
- Adolescent idiopathic scoliosis (AIS) is the most common type of spinal deformity affecting 2-3% of children ages 10-17 years.¹
- A Cobb angle of $>50^\circ$ is often an indication for a posterior spinal fusion (PSF) procedure due to the potential complications of untreated deformities.²
- Patients receiving a PSF for AIS are usually hospitalized for 5-6 days.³

Purpose:

- The purpose of this study is to investigate the efficacy of a recently instituted enhanced recovery after surgery (ERAS) pain management pathway compared to the traditional pain pathway (TPP) for patients with AIS undergoing PSF by assessing length of stay (LOS) and opioid requirements.

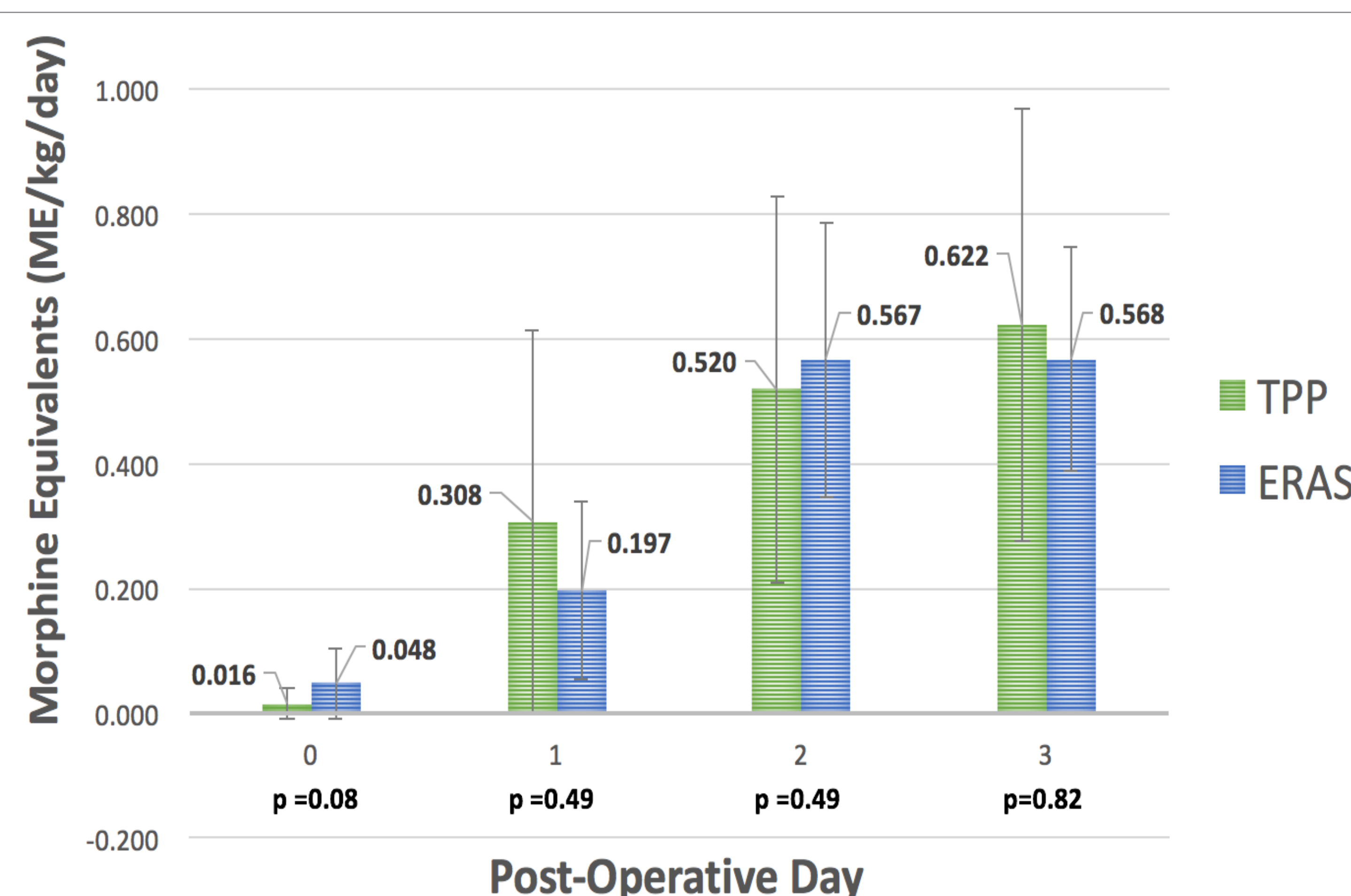
Methods:

- Retrospective analysis comparing TPP (n=22) and ERAS (n=15) patients, assessing LOS and opioid usage as primary outcomes.
- Pain score was a secondary outcome, measured with the Wong-Baker FACES pain rating scale.
- Data was collected from all AIS patients undergoing PSF performed by two surgeons between December 2013 and January 2018.
- TPP included intraoperative IT morphine and highly variable postoperative pain medications.
- ERAS pathway included the following:
 - Four doses of IV methadone over 48 hours
 - Hydromorphone IV PCA
 - Scheduled methocarbamol, acetaminophen, ketorolac, ondansetron
 - Strict protocol management overseen by the Acute Pain Service
- Patients were excluded if they weighed less than 40 kg or had significant comorbidities.



Results:

- LOS was significantly shorter by 1.7 days in the ERAS group compared to the TPP group (3.3 ± 0.6 vs. 5.0 ± 1.9 days, respectively; $p < 0.01$).
- Between groups, there was no difference in opioid consumption (ME/kg/day) on POD0 ($p = 0.08$), 1 ($p = 0.49$), 2 ($p = 0.49$) or 3 ($p = 0.82$).
- There was no difference in average postoperative pain scores between TPP and ERAS cohorts from POD0 to POD3 (2.89 ± 1.23 vs. 3.42 ± 1.30 , respectively; $p = 0.32$).



Discussion:

- Length of stay is a surrogate for achievement of postoperative milestones, indicating satisfactory pain control and functional recovery.
- A significant decrease in LOS is associated with cost savings³ and reduced patient morbidity.
- These preliminary findings suggest that our ERAS pathway benefits AIS patients by decreasing LOS, with no difference in postoperative opioid requirements or pain scores.

Conclusion:

- The value of evidence-based algorithms and expedited pain management protocols has been well established in adults.
- Comparative evidence of independent ERAS pathways is relatively understudied, especially in the pediatric population.
- The preliminary results of this study provide additional insight and demonstrate an effective ERAS pathway for AIS patients undergoing PSF.

Limitations:

- Our study's small sample size is a limitation. However, data collection is ongoing.

References:

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