Introduction & Methods

Adenotonsillectomy (AT) is the most common pediatric surgery performed in the United States. It is a first-line treatment for pediatric obstructive sleep apnea (OSA) and chronic tonsillitis (CT). Previous clinical studies report that children with OSA and an overnight SPO2 nadir below 85% require less postoperative opioids as compared to those with a higher SPO2 nadir. Studies also suggest that children with severe recurrent hypoxemia have increased opioid related adverse events. Many children in the United States, especially school age or greater, do not receive formal sleep studies prior to presenting for AT. This limits the availability of data that may influence clinical decision making regarding postoperative opioid administration. Presumably children who present to AT with a diagnosis of CT will experience less recurrent hypoxemia and thus may be less at risk to opioid hypersensitivity than children with OSA. The goal of this preliminary prospective study was to compare post AT opioid utilization and pain scores between children with a preoperative surgical diagnosis of OSA or CT.

We studied children (8 to 14 yrs old) undergoing AT for a diagnosis of CT (15 patients) or OSA (40 patients). Following informed consent, baseline pain characteristics were obtained. Children were taught to use a 10 cm Visual Analog Scale for postoperative pain assessment. Anesthetic care and postoperative pain orders were at the discretion of the anesthesia team and not dictated by study personnel. Pain was measured at recovery room arrival, 10, 20, and 30 minutes post arrival, at recovery room discharge, and at hospital discharge. The total amount of intravenous and postoperative opioids administered (in IV morphine equivalents per kg) were obtained from the medical record.

Patient Recruitment (9/1/15 to 11/09/16)

Results & Discussion

Age did not differ significantly (p=0.05) between children with CT (10.5 +/- 0.5) and OSA (10.9 +/- 0.3 years). Weight was significantly lower (p<0.05) in children with CT (48.3 +/- 5.7 kg) as compared to children with OSA (60.2 +/- 3.7 kg). Following AT, no significant differences between CT or OSA patients were seen in intraoperative (0.14 +/- 0.08 vs. 0.14 +/- 0.07 mg/kg, p=0.05) or postoperative opioid consumption (0.07 +/- 0.03 vs. 0.05 +/- 0.04 mg/kg, p=0.05). No differences were seen in Visual-Analog Scale pain scores between the two groups.

Our data suggest that preoperative surgical diagnosis of OSA vs. CT is inadequate to predict opioid utilization in patients presenting for AT. Formal overnight oximetry including SPO2 nadir was not used to make the diagnosis of OSA vs. CT in most of the subjects we observed. Future studies on opioid utilization in patients undergoing AT should endeavor to obtain these data. Our findings should be interpreted with caution because of small sample size. Moreover, our cohort was of older children and may not reflect the pathophysiology of the disease seen in younger children.

Conclusions & Future Directions

- Adenotonsillectomy is Exquisitely painful.
- Pilot Data Suggest that a Diagnosis of OSA vs. CT may not Differentiate Opioid Requirements in 8 to 14 year olds.
- Future Studies will Endeavor to Incorporate a Larger Sample Size, Sleep Study Data, and Younger Patients.
- Objective Markers of Opioid Sensitivity Should also be Assessed.

References