Introduction/Study Question:

Acetaminophen is an important part of multimodal analgesia following pediatric tonsillectomy. Acetaminophen was previously offered in a concentrated infant form allowing a high dose to be given in a low volume. The current preparation requires nearly 0.3ml/kg in volume to give a 15mg/kg loading dose. We aim to study if a single preoperative dose of acetaminophen has an opioid sparing effect in the immediate postoperative recovery of pediatric patients undergoing tonsillectomy.

Methods:

After IRB approval we conducted a retrospective chart review of 888 patients presenting for tonsillectomy or tonsillectomy and adenoidectomy between January 2010-December 2012. We excluded all patients who received an opioid other than morphine or hydromorphone. We collected demographic data as well as total opioid used (converted to morphine equivalents), pain at discharge, and recovery times. Frequency data was analyzed with a chi-square test while mean data was analyzed with a t-test. A pairwise comparison with Holm adjustment was done for differing doses of acetaminophen.

Results:

Of 795 patients included in the analysis 607 received preoperative acetaminophen while 188 did not. Demographic data between the groups were similar. Those who received preoperative acetaminophen were more likely to have received preoperative midazolam. There was no difference is the total amount of opioid used between the acetaminophen group (0.128 mg/kg ME) vs no acetaminophen group (0.122 mg/kg ME) (p=0.205). There were also no significant differences in pain at discharge, PONV rates, and PACU time. Total recovery time was longer in those patients who received acetaminophen. We then compared only the patients who received a >14mg/kg loading dose to those who received <14mg/kg or none. No opioid sparing effect was seen with the higher acetaminophen dose.

Discussion:

Acetaminophen is an important part of multimodal analgesia in children, especially in children undergoing tonsillectomy. Previous studies have shown a loading dose of rectal acetaminophen to have opioid sparing effects in pediatric ambulatory surgery patients. Our retrospective study failed to demonstrate an opioid sparing effect of a single preoperative oral acetaminophen dose in pediatric tonsillectomy patients. Furthermore it failed to reduce PACU and total recovery times, as well PONV rates. The currently available oral acetaminophen suspension requires a high volume of liquid to be given that exceeds the critical volume of 0.4ml/kg that may increase aspiration risk. Studies should examine the efficacy of oral vs IV or rectal acetaminophen in the tonsillectomy patient that exceeds the critical volume of 0.4ml/kg that may increase aspiration risk. Reviewing our data questions the practice of routine administration of oral acetaminophen in light of the potential aspiration risk. Further studies should examine the efficacy of oral vs IV or rectal acetaminophen in the tonsillectomy patient while considering the aspiration risk associated with oral acetaminophen suspension.

References:

1. Pediatric Anesthesia 2013; 23: 475-95
2. Anesthesiology 1999; 91: 442-7

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Preoperative Oral Acetaminophen does not Reduce Perioperative Opioid Use in Pediatric Patients Undergoing Tonsillectomy

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