Intravenous Versus Oral Acetaminophen for Post-Tonsillectomy Pain in Children: Which Route Leads to Better Outcomes?

Primary Investigator: Christopher Kremer BA BSN CAPA RN
University of Virginia Medical Center, Charlottesville, Virginia
Co-Investigators: Mark Conaway PhD, Rebecca Gilbert DNP BSN CPAN CCRN RN, Claiborne Miller-Davis MS BA BSN RN

Introduction: Tonsillectomy in the pediatric population can result in a significant amount of postoperative pain. Acetaminophen is a commonly used non-opioid analgesic. Common routes of acetaminophen administration for immediate postoperative tonsillectomy pain are intravenous and oral.

Identification of the problem: Frontline team members had opposing anecdotal observations concerning which route provided superior immediate postoperative pain relief.

Purpose of the Study: This study sought to determine which route of acetaminophen (IV or oral) provided optimal analgesia for children s/p tonsillectomy and to evaluate parental satisfaction with pain control interventions.

Methodology: Primary objectives were to assess if there was a statistically significant difference in pain scores and time to first rescue medication s/p tonsillectomy with or without adenoidectomy between two randomized groups of children aged 3-17 years who received two standards of care: one group received acetaminophen 15 mg/kg IV intraoperatively and the other received acetaminophen 15 mg/kg oral elixir postoperatively (as soon as it was safe for the child to swallow as evidenced by being awake with swallow reflex noted). Evaluation of pain was measured with the FLACC and 0-10 pain rating scales. A secondary objective was to compare parental satisfaction with postoperative pain control (parental satisfaction responses were measured on a Likert scale).

Results: Data analysis demonstrated that there was no statistically significant difference in pain scores between the two arms of the study. Rescue medications were given less frequently to children in the IV group, although the children receiving IV acetaminophen required the rescue medication sooner than those receiving oral elixir ($p = .021$). There were no differences in parental satisfaction between the two groups.

Discussion: The benefit of IV administration was the enhanced bioavailability. The advantage of oral elixir administration was the immediate soothing effect the suspension provided. Also, it was believed that children who received the oral medication postoperatively when they were cognitively aware of what was happening were comforted by knowing that the nurse was actively doing something to help them feel better.

Conclusion: Oral and IV acetaminophen are equally effective at controlling immediate postoperative discomfort in the pediatric post-tonsillectomy population.

Implications for perianesthesia nurses and future research: Nurses caring for pediatric postoperative tonsillectomy patients should individualize pain management plans to optimize pain relief and parental satisfaction.