



The Benefits of Pre-Emptive Acetaminophen for Post-Anesthesia Pain in Pediatric Ophthalmological Surgery: A Quality Improvement (QI) Project

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Introduction

Pediatric pain following ophthalmology surgery often causes distress for children emerging from anesthesia in post anesthesia care unit (PACU).

Likewise, management of this surgical pain is a major factor in timely recovery.

Election of acetaminophen is commonly prescribed as a pre-emptive analgesia before otolaryngological surgeries in children because it is both safe and effective.

Background

- Ophthalmology surgery center does not routinely administer preoperative analgesics to pediatric patients.
- PACU nursing staff reported pediatric patients were very distressed and crying inconsolable during emergence from anesthesia and recovery.
- Pediatric parents reported they were very concerned with their child's crying, hysteria behavior and questioned if in pain?

Aim of the Project

Surgery can be a source of anxiety and pain for many patients, especially children and parents. While opioids and benzodiazepines are common to manage these issues, they come with risks. Evidence suggests that giving acetaminophen before and during surgery is a safe and effective option for children. By implementing this low-risk, high-reward evidence-based practice (EBP), we can enhance patient safety, promote health, and reduce unnecessary distress and opioid-induced sedation.

Description of Intervention

Quality Improvement Project used Plan Do Study Act model. There were 42 pre-intervention/46 post-intervention children ranging from 7 months to 13 years. Anesthesia providers ordered acetaminophen preoperatively after weight documented in Post-Group. Team collected pre-intervention (baseline) and post-intervention RLOS data, and nursing observational pain data for three month periods, respectively. PACU nursing assessments completed using FLACC observational Likert pain assessment survey.

Description of Data Collection and Analysis



Outcome Measures/ Results

- Three months prior to intervention (N=42), 6 patients received pre-operative Tylenol .
- After the intervention (N=46), 14 patients received pre-operative, and 7 patients received intra-operative acetaminophen. No opioids were given in the post-intervention period as compared to 4 patients in the pre-intervention period.
 - Percentage of patients with a FLACC pain score of zero increased from 69% to 76% in the post-intervention period. Patients with severe pain decreased from 7.2% to 4.35% and moderate pain from 9.6% to 6.5% comparing the pre-/post-periods.
 - Type of surgery, ages and gender were similar across groups.

Pre-emptive acetaminophen effectively reduced PACU RLOS and demonstrating improved nursing observational pain scores on Faces, Legs, Activity, Cry, Consolability (FLACC) pain survey. Pre/post interventional groups revealed a significant difference in the post interventional group who received acetaminophen during their preoperative phase of care. Perianesthesia nurses reported preoperative administration of acetaminophen demonstrated:

- Children's PACU pain decreased
- Children were less likely to experience distress
- The Same Day Surgery PACU length of stay was significantly reduced.

Implications for Practice

Administering acetaminophen preoperatively eliminated the need for opioids in PACU.

One limitation related to type of acetaminophen to be administered, such as oral or rectal. This difference may potentially impact the outcomes due in bioavailability or bioequivalence.

Furthermore, the timing of acetaminophen administration was labeled as "pre-incision" rather than a specific period, which may have influenced the onset of its maximum effect.

Finally, the PACU nursing staff's pain observations' assessment may be subjective.

Future Research

Future research should explore the comparison between effects of acetaminophen and ibuprofen for pre-emptive analgesia in children having strabismus surgery.

Future research should investigate the pre-emptive administration of acetaminophen in the adult same day surgery population.

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Acknowledgement

Wilmer Prep/PACU Nursing Staff; Trish Ryan, MSN, MHA, CPAN for her expert scientific design/composition for poster