A RANDOMIZED CONTROLLED TRIAL TO COMPARE PAIN MEDICATIONS IN CHILDREN UNDERGOING STRABISMUS SURGERY

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Introduction: Children undergoing strabismus surgery often experience pain and post-operative nausea and vomiting. For many of these children, multiple strabismus surgeries are needed and past surgical experiences can contribute to both parental and child anxiety.

Identification of the problem: Nurses in the perianesthesia unit noted that the type of medication used intraoperatively impacted the symptoms experienced by the children in the post anesthesia recovery period.

Purpose of the study: The purpose of this study was to investigate optimal combinations of analgesia to create a standardized approach to pain management in pediatric patients undergoing strabismus surgery. Study aims include the evaluation of the difference in pain control and postoperative nausea and vomiting after administration of hydromorphone versus fentanyl and to test for an association between parental and child reported anxiety and pain score.

Methodology: Participants were recruited preoperatively from the surgical unit of a children's hospital in an academic center in the mid-western US. Children between the ages of 3 to 10 years undergoing either a first or repeated strabismus surgery were randomly assigned to receive either hydromorphone or fentanyl.

Results: Data were collected from 135 participants. Pain score postoperatively was found to be significantly higher among patients receiving fentanyl as compared to those receiving hydromorphone ($p = 0.011$). Pain scores 24 hours after discharge were significantly higher among patients who received fentanyl as compared to hydromorphone ($p < 0.001$). Neither nausea nor vomiting was significantly associated with medication allocation. No association was found between levels of anxiety and pain scores.

Discussion: This is the first study to compare two agents commonly used for intraoperative pain in children undergoing strabismus surgery.

Conclusion: Although no differences were found in levels of nausea and vomiting, the participants receiving hydromorphone experienced significantly less pain postoperatively and 24 hours after hospital discharge.

Implications for perianesthesia nurses and future research: These results suggest that hydromorphone is the optimal medication to treat the pain associated with strabismus surgery. Future research should focus on replicating the study in children undergoing similar same day surgery procedures where combinations of either fentanyl or hydromorphone are administered intraoperatively.