Implementation of a Peri-operative Pain and PONV Toolbox Improves Patient Outcomes in Outpatient Strabismus Surgery Patients
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Introduction

Pain is a key quality indicator at the Hospital for Sick Children. The purpose of this project is to implement PDSA cycles to improve moderate to severe pain and PONV in post-operative outpatient strabismus surgery patients. Clinical opinion and an audit in the PACU in our institution identified this population of patients as having high incidence of pain and PONV, with variable outcome due to variable practice. Using QI methodology, we i) identified the etiology and contributing factors that lead to such variable outcome, and ii) decreased the incidence of moderate to severe pain and PONV in PACU, by increasing awareness, education, and knowledge translation.

Materials & Methods

We conducted a quality improvement project, that collected data retrospectively for 100 patients to establish a baseline within a single institution. Data analysis identified several key factors that lead to heterogeneous practice, and also varying patient outcomes. After presenting the initial data to the department, we took a multi-disciplinary approach to devise an intraoperative bundle, which was then presented to the department for feedback. After revisions, the intraoperative toolbox was launched in July 2015, and data was collected in similar fashion to the baseline data. Prospective data was collected for 118 patients after introduction of the peri-operative toolbox, and a follow-up sample of 10 patients per month there-afterwards were collected. The primary outcome was to decrease moderate to severe pain by 25%, and to decrease PONV by 50% of baseline within a 12-month period.

Results

Our initial baseline data from 100 patient charts (91 had documented pain scores), showed a 47% incidence of moderate to severe pain, and an 18% incidence of PONV post strabismus surgery. After the implementation of our toolbox, 118 consecutive charts were reviewed (116 had documented pain scores). Of these, 38% had moderate to severe pain, and 6% of patients experienced PONV in PACU. In follow-up, the percentage of patients in moderate to severe pain decreased to 30%, and 4% of patients experienced PONV in PACU. Compliance to the toolbox (of at least 80%) increased from 32% from baseline, to 82% and remained in the follow-up. Along with evaluating pain scores in PACU, we evaluated the percentage of pain scores above 4 (indicating mod-severe pain). On average, baseline data showed 26% of recorded pain scores to be in the moderate-severe range. After our interventions, this number decreased to 16%. In follow-up, this number decreased to 11%. PACU length of stay was not delayed, less drugs were administered in PACU, and no adverse events occurred during the use of this perioperative intervention.

Discussion

We applied QI methodology to identify potential improvements in patient outcome for outpatient pediatric strabismus surgery. By standardizing practice to a level of 80%, we were able to decrease the incidence of moderate to severe pain by 35%. The duration of time patients spent in moderate to severe pain decreased by 55%, and PONV rates decreased by 75%. We have been able to sustain these improvements and continue to search for ways we can further refine this perioperative tool and further improve quality of care received by this population.