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Patient Safety

(Abstracts and Case Report/Series)

Contents

Implementation of Safety Checklists and Safety Attitudes of Electroconvulsive Therapy Providers

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Introduction:

Surgical safety checklists are associated with improved safety processes, safety attitudes, collaboration, and reduced complications. Electroconvulsive therapy (ECT) is a psychiatric treatment modality that uses an electric current to induce a generalized seizure in patients under general anesthesia. ECT treatment teams consist of psychiatrists, anesthesiologists, nursing staff, as well as learners in academic institutions. Applying an electrical stimulus to a patient may cause them to destabilize quickly, thus teams should foresee and be well-equipped to manage complications, for example by ensuring they are cognizant of the patient's medical history and previous treatment history. Checklists may contribute to treatment efficacy by allowing teams to debrief after treatments and plan for medication or electrical stimulus adjustments in future treatments, for example. We sought to determine the impacts that introducing a pre-ECT safety checklist had on the safety attitudes of ECT providers, overall ECT practices, and patient outcomes.

Methods:

All ECT team members at our centre were eligible to participate in the study. The primary outcome was the Composite Process Score (CPS), a measure consisting of 1) whether the patient identity was confirmed; 2) whether nil per os (NPO) status of the patient was confirmed; 3) whether there were any medical conditions or concerns; 4) whether the outcome of the previous treatment was discussed (e.g., seizure duration, changes in medication or stimulus); 5) whether a bite block was placed prior to ECT treatment; and 6) whether a discussion took place including all team members following the ECT treatment (i.e. debrief).

Our secondary outcomes included the difference in responses from ECT providers to the modified Safety Attitudes Questionnaire (SAQ), a validated questionnaire, which was administered before and after the checklist, as well as other ECT-specific patient outcomes. Patient outcome measures included duration of seizure, duration between end of seizure and transfer to the post-anesthetic care unit (PACU), and length of stay in the PACU.

Data analysis (α set at $p<0.05$) was done using IBM SPSS (version 26.0 for Windows, Armonk, New York, 2019).

Results:

414 ECT sessions were observed before, and 205 sessions were observed after checklist implementation. After checklist implementation, there was a significant increase in CPS score ($p<.001$), with confirmation of patient ID, NPO status, overview of medical history, discussion of previous outcomes, and debriefing all increasing

significantly. There were no statistically significant changes in the mean scores of individual SAQ questions or total SAQ scores after checklist implementation (N=31). Pre-checklist, there was a statistically significant difference between disciplines in responding how difficult it was to 'speak up' (N=51, p=.005), with nursing staff having lower mean scores. Post-checklist, there was a statistically significant difference between disciplines in how much they felt they were encouraged to report safety concerns (N=31, p=.017), with staff anesthesiologists having lower mean scores. There was also a significant difference in how respondents felt they were working as a team (N=31, p=.024), with nursing staff having lower mean scores.

Discussion:

Implementation of a safety checklist in the setting of ECT showed improvement in safety item performance, but no significant change in care provider safety attitudes or improvement in clinical outcomes. These results do not provide clear evidence to support the use or non-use of safety checklists during ECT treatment.

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Table 1. CPS Performance Pre- and Post-Checklist By Individual Item

	Pre-checklist performance (%)	Post-checklist performance (%)	Significance (2-tailed)*
Pt ID confirmed	50.7%	99.0%	<.001
NPO status	84.8%	98.5%	<.001
Med hx	68.4%	99.5%	<.001
Previous outcome	32.6%	96.1%	<.001
Bite block	99.5%	100.0%	1.000
Debrief	25.6%	86.8%	<.001

**Fisher's exact test, p<0.05 is considered significant*

Improving Pain Outcomes for Pediatric Cardiac Surgery; A Benchmark Audit

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Introduction:
Acute pain in hospitalized children remains common and undertreated.[1] There are specific concerns for acute pain in the cardiac surgery population; tachycardia can evolve into a hemodynamically significant tachyarrhythmia, hypertension can cause a critical increase in ventricular afterload complicating hemostasis and hypoxia related to sedation can worsen pulmonary vascular resistance.[2] Acute pain is a risk factor for the development of chronic pain, with one study indicating 21% of children having undergone sternotomy reported significant chronic pain up to five years later.[3]

By protocol at our hospital, pain assessments occur with vital sign assessment (every 4 hours as a minimum), during moderate to severe pain or pain above the patient's stated manageable level. Pain reassessments occur within one hour of a pain management intervention. The purpose of this study is to benchmark current pain processes and clinical pain outcomes for pediatric cardiac surgical patients to identify modifiable targets for improvement.

Methods:
This project was approved by our Institutional Quality Improvement Regulatory Board. We reviewed patients admitted post cardiac surgery via sternotomy during August 2020. All patients are transferred to the Cardiac Care Unit (CCU) for immediate postoperative management and transferred to the cardiac ward when clinically stable. Postoperative details were recorded for each patient by time period; Post Operative Day 0, 1 or 2 and location; (CCU) or cardiac ward.

Process outcome indicators included (1) the number of pain assessments/ 24-hour period with a pro-rated 24-hour equivalent calculated as required (2) the proportion of nursing interventions and reassessments in the event of severe pain (Visual analogue scare (VAS) equivalents ≥7/10) and moderate pain (VAS equivalents ≥4/10, <7/10) and (3) the pain scoring assessment tool.

Clinical outcome indicators included (1) the absolute highest (most severe) and the lowest (least severe) pain score for each patient during each time-period and location in addition to the mean and mode highest and lowest pain scores, (2) Complications possibly related to analgesia such as excessive sedation, desaturation, nausea and vomiting. Mitigating circumstances such as critical life support treatment precluding pain assessment or ward transfers impacting assessment timing were noted and excluded from pain protocol compliance analysis.

Results:
Of 41 patients assessed, 11 did not have a sternotomy and were excluded. In terms of process outcomes, the mean number of pain assessments in a 24-hour period was 10.7 on day 0, 9.6 on day 1 and 7.4 on day 2. The

proportions of compliance with intervention and reassessment encounters were 76% (100% compliance), 13% (50% to 100%) 4% (>0 % to < 50%) and 7% (no intervention). The most frequently used pain assessment scores were FLACC/revised FLACC (78%) and NIPS (14%). For clinical outcomes, the "worst" pain was recorded as severe in 23%, 18% and 10% on post operative days 0, 1 and 2 respectively. The "worst" pain was recorded as moderate in 23%, 43% and 39% of patients on post operative day 0, 1 and 2 respectively. In 100% of patients on post operative days 1 and 2, the "best" score was either mild or none.

Discussion:

Our results demonstrate high prevalence of significant pain, and while refractory significant pain was not shown, considerable scope for improvement in pain management exists. In terms of process outcomes, the mean number of pain assessments exceeded our minimum standard on all post operative days, and high levels of compliance to interventions post severe and moderate pain were noted. We attribute this elevated assessment rate to pain resource allocation and quality improvement activities implemented following previous pain prevalence studies. [4, 5] We intend to use this data to develop strategies to improve clinical pain outcomes and the process of pain assessment.

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Post Tonsillectomy Recovery at Home from the Parents' Perspective: A Qualitative Analysis

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Introduction:
In Canada pediatric adenotonsillectomy (TA) is an ambulatory surgery, shifting the burden of care to parents. Pain may persist up to 2 weeks and problematic behaviors may emerge. The purpose of this study was to explore the parental experience in the care of their child at home following elective TA using a qualitative methodology.

Methods:
This study analyzed a subset of children recruited for a prospective cohort study to assess pain management at home of children, aged 2 to 12 years, after TA. The cohort study received approval from the Institutional Review Board and was conducted between December 19, 2017 and December 18, 2018. Inclusion criteria included fluency in English or French. Children with comorbidities were excluded.
Parents were instructed to record the pain scores and administration of analgesics in a diary (paper or electronic) for 14 days following surgery. They also wrote comments to two open ended questions: 1) "*Describe the most important factors that helped you to take care of your child at home after adenotonsillectomy*." and 2) "*Is there something else you would like us to know about your experience?*" The electronic diary gave parents the option to write comments daily. The comments were anonymized and transcribed into WORD documents for analysis in their original language with a qualitative thematic analysis, drawing line-by-line coding methods in grounded theory. Themes for the problems encountered, and the strategies employed by parents were identified and models were developed. Factors that helped/hindered parents were identified.

Results:
144 families submitted comments. The median age of children was 4.2 years old (range 1.7-10.9 years) and 52% were girls.
Parents encountered problems while taking care of their child and employed several strategies. Parents had difficulty managing symptoms (pain, fever, PONV, halitosis), problematic behaviors (refusals, sleep disturbance, night terrors), and the physical needs (sleep, nutrition, hydration). Pain management was the predominant problem.
Our analysis identified two main themes for the parental strategies: pharmacologic, and non-pharmacologic. Pharmacologic strategies included medication 1) type, 2) route, and 3) regimen. Non-pharmacologic strategies included 1) fluids and food, 2) distraction, and 3) parenting. Return to hospital was also a strategy.
Some parents felt ill-prepared, and lacked strategies to manage pain at night, refusals, and night terrors. Inconsistent messaging from health care providers was a barrier. Pain scales, pain diaries, and remote postoperative liaison with the research team were helpful supports.

Discussion:

The findings provide insight into the challenges faced by parents in the management of the pain, physical needs, and problematic behavior of their child after adenotonsillectomy. Their comments suggest that educational content should be standardized and include pain scales and diaries, pharmacologic and nonpharmacologic strategies, and specific strategies to manage pain at night, night terrors and refusals. Remote support with SMS/MMS allowing a practicable liaison with health care providers should be explored.

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Figure 1:

Figure Model of the problems identified by parents during their child's recovery following adenotonsillectomy.