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IMPLEMENTATION OF AN AMBULATORY ADDUCTOR CANAL CATHETER PROGRAM TO FACILITATE DAY-CASE SURGERY FOR ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION SURGERY IN ADOLESCENTS: EVALUATION OF COSTS AND IMPACT ON OPIOID REQUIREMENTS

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Introduction and aims:

Adolescent anterior cruciate ligament (ACL) reconstruction surgery typically requires an overnight hospital stay and an opioid-based perioperative analgesic regimen.[1]. Pressure on hospital inpatient bed capacity since the emergence of SARS-CoV-2 has significantly increased elective surgery wait times [2]. In response to this challenge, we developed an ambulatory perineural catheter program to facilitate day-case surgery at our institution. In this study, we performed an opioid-sparing and preliminary economic evaluation of this initiative.

Methods:

We performed a retrospective audit of adolescent patients who underwent ACL reconstruction surgery and divided them into three groups: group A received local infiltration analgesia (LIA); group B received both a single-shot adductor canal block (ACB) and LIA; and group C received an ACB and catheter, with an elastomeric local anaesthetic ropivacaine infusion pump attached in recovery. Groups A and B were overnight admissions while group C received day-case surgery. Discharged patients received a daily follow up phone call from our Acute Pain Service, documenting opioid requirement and providing catheter removal advice. We compared intraoperative and postoperative opioid consumption using wilcoxon rank-sum and pairwise tests. A correction for multiple comparisons was applied. Finally, we estimated the cost of a perineural adductor canal catheter with elastomeric pump supplies and a post-surgical overnight hospital stay.

Results:

The audit included 55 patients. These patients (14 males) were median (IQR) 16 (15-17) years old, weighed 60 (52-68) kg, and their surgery lasted 3 (2-3) hours, with n=20 group A, n=15 group B, and n=20 group C.

Intraoperatively, group C received less opioids than group A ([MD] 0.08 mg/kg, 95% CI 0.02 to 0.13 mg/kg, p=0.05)(Figure 1).

There was no reduction in opioid consumption in recovery between those who received LIA (group A) and those who received ACB(groups B&C)(Figure 2).

Post operative day one (POD1) opioid analgesia was used by 14/19 (74%) patients in group A, 7/11 (64%) patients in group B, and 4/19 (21%) patients in group C ($p=0.003$). This equated to patients in group C requiring significantly less opioid statistically on POD1 compared to group A ([MD] 0.04 mg/kg, 95% CI 0.02 to 0.10 mg/kg, $p=0.002$) and group B ([MD] 0.06 mg/kg, 95% CI 0.0 to 0.12 mg/kg, $p=0.008$)(Figure 3).

The cost of an adductor canal catheter with an elastomeric pump was \$557 per patient. The cost of an overnight hospital admission was approximately \$2,218 per patient [3].

Discussion and conclusion:

Our audit identified an association between ambulatory adductor canal catheters and reduced opioid consumption post adolescent ACL reconstruction surgery which, despite the small effect size, demonstrates potential future benefit on hospital bed capacity and costs.

References

[1] Micalizzi RA et al. Review of outcomes in pediatric patients undergoing anterior cruciate ligament repairs with regional nerve blocks. *J Pediatr Nurs.* 2014 Nov-Dec;29(6):670-8

[2] Matava C et al. A Canadian Weekend Elective Pediatric Surgery Program to Reduce the COVID-19-Related Backlog: Operating Room Ramp-Up After COVID-19 Lockdown Ends-Extra Lists (ORACLE-Xtra) Implementation Study. *JMIR Perioper Med.* 2022 Mar 15;5(1):e35584.

[3] Arneja JS et al. Ambulatory cleft lip surgery: A value analysis. *Can J Plast Surg.* 2013 Winter;21(4):213-6.