

Implementation of Continuous Nerve Blocks in Pediatric ACL Patients Reduce Opioid Use

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Background Information: Pediatric athletes are vulnerable to injuries due to growth spurts, underdeveloped bones, and lack of motor skills (Costa e Silva et al., 2022). Annually, over 775,000 children participating in sports are injured, with 25% of which require surgical intervention. According to Taylor et al. (2018), the use of opioids remains a topic of debate among the public and medical professionals due to the high addiction potential and side effects. It has been reported that 46.3 million people (> 12 years old) have a substance use disorder, with 14% misusing prescription opioids. Our PACU nurses found patients and families consistently voiced their concerns regarding the prescription of opioids after surgery.

Objectives of Project: Therefore, we evaluated the use of non-opioid post-op pain management therapy in hopes of reducing opioids consumed by utilizing a continuous peripheral nerve block (CPNB) for ACL repair patients.

Process of Implementation: Our team reviewed charts of 16 pediatric patients and placed them into two therapy groups—single peripheral nerve block (SPNB) or SPNB + CPNB pump. Inclusion criteria included: age (13-18), ACL reconstruction surgery by a single surgeon, femoral SPNB, and no CPNB pump issues. Patients were consented to receive a CPNB of 0.2% ropivacaine and continued therapy at home until post-op day 5. All patients received 20, 5 mg oxycodone tablets and were asked to report the amount taken during post-op days 1-5.

Statement of Successful Practice: When comparing post-op oxycodone tablet consumption, the SPNB group took 10x more (5.3 tablets) compared to SPNB + CPNB pump group (0.6 tablets). Patients with SPNB consumed 26.7% of prescribed tablets, while SPNB + CPNB pump patients consumed 2.9% ($p = 0.02$).

Implications for Advancing the Practice of Perianesthesia Nursing: Pediatric athletes have a high opioid use rate (28-46%) due to sport injuries (Ekhtiari et al., 2020), making this population at risk for misuse. With the potential for associated problematic opioid use behaviors it's important to consider adjunct therapy, such as CPNB (Groenewald, 2019). Our preliminary findings support implementing a pain management protocol using CPNB pumps for other specialties in our organization.