



Acute Compartment Syndrome in Pediatric Patients with Peripheral Nerve Blocks

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Introduction

Acute Compartment Syndrome (ACS) is an emergency condition.¹ Peripheral nerve blocks (PNBs) are commonly used in pediatric orthopedic surgeries for postoperative pain management. Placing PNBs in patients at risk for ACS is controversial, proposing concerns that PNBs mask pain associated with ACS, potentially delaying diagnosis.² Few studies exist on the impact of PNBs on diagnosis & treatment of ACS in pediatric patients.

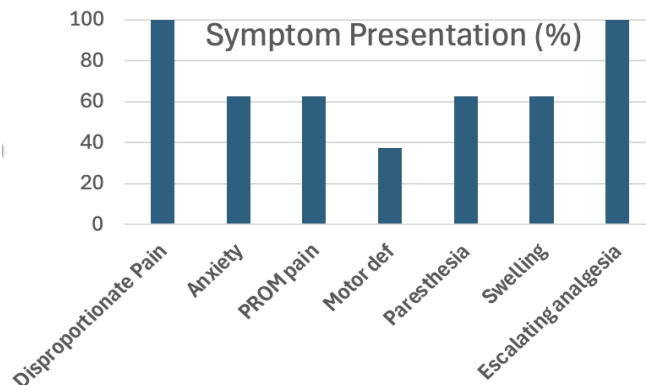
This retrospective study investigates the impact of PNBs on time to ACS diagnosis and fasciotomy and clinical outcomes in these patients; comparing the findings with current literature.

Methods

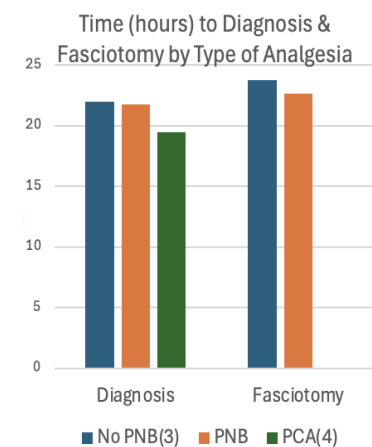
- 10-year span: 2013-2023
- 6 pediatric hospitals
- Children (<22 years old)
- EMR search using ICD and CPT codes
- Identify all ACS after orthopedic procedures with PNBs
- Demographics, PNB details, clinical presentation, and treatment outcomes were analyzed

Results

- **31,059** PNBs performed
- **8** children with ACS
- Sport (3/8), vehicle (2/8), osteotomy (3/8)
- Lower extremity: 6/8
- Male to female: 6:2
- Mean age: 15.75 years (12-21)
- Mean weight 66.5 kg (34-88)
- Median time to diagnosis 21.75hr (6.25 – 70.75)
- Median time to fasciotomy 22.62hr (8.75 – 73)
- One patient with missed ACS
 - Persistent foot drop
- Catheters: 5/8; Ropivacaine 0.1%



Discussion



- 100% with escalating pain.
- Literature: 88% of children without PNBs present with pain.³
- Median time to diagnosis and fasciotomy: 21.75hr and 22.62hr.
- Literature: Non-PNB mean time to diagnosis 22hr and fasciotomy 23.8hr.³
- Diagnosis time patients with PCA 19.5hr.⁴
- 800 adults w tibial fractures: missed ACS with PNB 0.7% and 1.7% in non-PNB patients.⁵
- One patient experienced 70hr to diagnosis despite early complaints of pain outside the coverage of adductor canal PNB.

Conclusion:

- The data suggests that PNBs in children at ACS risk might not delay diagnosis/treatment.

References

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