Evaluation of Regional Anesthesia for Hip Fracture Patients

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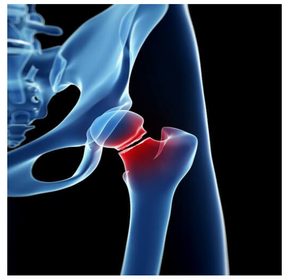

Objectives

- Review the recent literature on the relevance of peripheral nerve blocks (PNBs) for the management of traumatic hip fractures
- Complete an evidence-based practice (EBP) project analyzing 60 hip fracture patients at a Level-1 trauma center and report primary and secondary outcomes
- Identify gaps in practice and make recommendations to align with EBP and improve efficiencies in care

Background

The use of peripheral nerve blocks (PNBs) is an important analgesic technique for patients who have suffered from hip fractures and are utilized to improve perioperative outcomes. Each year, there are approximately 150,000 hospitalizations from hip fractures costing the health care system $10-15 billion dollars annually. EBP shows that the use of PNBs improve patient outcomes by decreasing length of stay (LOS), reducing opioid consumption, reducing pain scores, and decreasing time to ambulation. The aim of this EBP project was to determine the usefulness of PNBs in traumatic hip fractures at a single facility.

Methods

- 60 patients who met inclusion criteria were enrolled for data collection using consecutive sampling technique
- **Inclusion Criteria:** adult and geriatric patients (ASA I, II, III) who presented to the ED with a traumatic hip fracture before Jan 2021 (Group 1) and after Jan 2021 (Group 2), consented for regional anesthesia
- **Exclusion Criteria**: ASA IV or V, multiple fractures, polytrauma, traumatic brain injury, aortic stenosis, coagulopathy, allergy to local anesthetics, distal femur fracture
- **Primary Outcomes:** Pain Scores (NRS), Morphine Milligram Equivalents (MMEs), Length of Stay (LOS)
- **Secondary Outcomes:** Estimated Blood Loss, Fluid Administration, Foley Catheter Rates, Complications (Surgical Site Infection, Pulmonary Infection, Encephalopathy)
- IBM SPSS version 29.0.2.0 was utilized for data analysis

Results

- Mean pain scores between groups did not reach statistical significance, although lower at 3 time periods
- MME consumption were less intraoperatively (p=0.03) and 24 hours post operatively (p=0.037) in the intervention group
- MMEs 48 hours post-op were also lower (p=0.127)
- Patients who received PNBs consumed less opioids while maintaining similar pain scores compared to those who did not receive PNBs
- LOS was slightly higher in the intervention group
- Time to first ambulation, blood loss, vasopressor use, blood administration, and complication rates were similar between groups

Outcome Measurements	Pre-Standing Order Group	Post-Standing Order Group	p-value
Mean Pain Scores 1 hr	2.69	2.38	0.342
Mean Pain Scores 4 hrs	3.9	3.81	0.458
Mean Pain Scores 12 hrs	3.62	3.88	0.333
Mean Pain Scores 24 hrs	3.93	2.73	0.053
Mean Pain Scores 48 hrs	186.8	95.6	0.164
MMEs total	186.8	8.9	**0.002**
MMEs intra-op (mg)	14.7	27.5	**0.019**
MMEs 24 hours post-op (mg)	44.1	27.5	**0.018**
MMEs 48 hours post-op (mg)	38.0	22.1	0.127
LOS (days)	4.3	5.13	0.076

Practice Recommendations

- Current evidence-based practice and the results of this retrospective chart review continue to show the benefit of PNBs in the traumatic hip fracture population
- Creation of a standardized protocol is recommended, including specific blocks for each type of hip fracture and the consistent use of multimodal analgesia
- Streamlined processes for accurate and timely documentation in EMR is advised, specifically time to first ambulation and timely pain score documentation
- Future EBP projects are recommended to exclude patients from study who are not naïve to narcotic use
- Increasing provider knowledge on the benefit of PNBs and type of PNBs for
- Continue use of the following blocks for proximal hip fractures: PENG, Fascia Iliaca, Femoral Nerve Block, Erector Spinae Block
- Increase provider proficiency with PNBs

Conclusion

The use of PNBs in traumatic hip fractures is an evidence-based intervention that improves patient outcomes and optimizes recovery after surgery

PNBs can **lower opioid consumption** while **maintaining low reported pain scores**

Incomplete documentation in EMR, several confounding variables, and small sample size, may have led to a lack of statistical significance

References