FAST TRACK REGIMEN INCORPORATING ADDUCTOR CANAL BLOCKS TO FACILITATE DISCHARGE AFTER OVERNIGHT STAY FOLLOWING KNEE ARTHROPLASTY - A FEASIBILITY STUDY

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Introduction

- Optimal postoperative analgesia is a cornerstone for fast track arthroplasty regimens. [1]
- Adductor canal blocks provide comparable analgesia to femoral blocks for TKA, while preserving motor power (11% and 95% decrease from baseline, respectively).[2]

Hypothesis

- A fast-track regimen utilizing the continuous adductor canal block will permit discharge of knee arthroplasty patients within 24 hours postoperatively.
- **Primary outcome measure**:
- discharge readiness by 23 hours postoperatively.
- **Secondary outcome measures**:
- 24 to 72 hour pain scores, narcotic consumption, catheter complications, adverse events.

Methods

Time	Protocol/Intervention
- 4h	500cc of clear, glucose-containing beverage
- 2h	Acetaminophen 975mg Naproxen 500mg Gabapentin 600mg Granisetron 1mg
- 1h	**Blocks** Lateral femoral cutaneous nerve (5cc) Intermediate femoral cutaneous nerve (5cc) Pericapsular injection (20cc) Adductor canal infiltration and catheter (30cc) **Spinal -** 2cc of 0.75% Bupivacaine **Block Solution: 60cc of Ropivacaine 0.5% (300mg), 1:400k epinephrine, 10mg Morphine, 30mg Ketorolac**
0h	Unilateral primary Knee Arthroplasty
+ 1h	Connection of catheter to home pump 0.2% Ropivacaine Settings: 6mL/h basal rate, 4mL q30min PRN demand
+ 24h	Patient home with: catheter + home pump (72hrs) Gabapentin 300mg BID Naproxen 500mg BID Acetaminophen 325mg/Oxycodone 5mg 1-2 Q4H PRN Hydromorph Contin 3mg Q8H PRN

Discharge criteria

- Ability to transfer to chair or toilet
- Walk 5 stair steps, or 70m on level ground with walking aids
- Ability to participate in self care
- Pain well controlled (<5/10)
- Free from medical or surgical complications

Inclusion Criteria

- Age 40-70; elective unilateral primary total knee arthroplasty; ASA Class 1 or 2.

Exclusion Criteria

- Narcotic dependent (OME > 10mg/day for 4 months); chronic pain (e.g. fibromyalgia); significant cardiac, CNS or respiratory disease; poor cardio-respiratory reserve; BMI> 35; OSA with AHI > 15 or CPAP use; coexisting hematological disorder or coagulopathy; pre-existing major organ dysfunction; major psychiatric illnesses; uncontrolled diabetes mellitus; allergy to study drug; preoperative neurologic deficits; use of walking aids preoperatively; lack of postoperative chaperone/home help; Language barrier; pregnancy.

Research

Table 1: Participant Characteristics	
Patients meeting criteria	**39**
Patients consented	**26**
Male / female: n (%)	**13 (50%) / 13 (50%)**
Age (yrs) : median (range)	**63.5 (52-70)**
BMI: median (range)	**30.2 (18-35.4)**
ASA: (1,2,3)	**(2, 21, 3)**

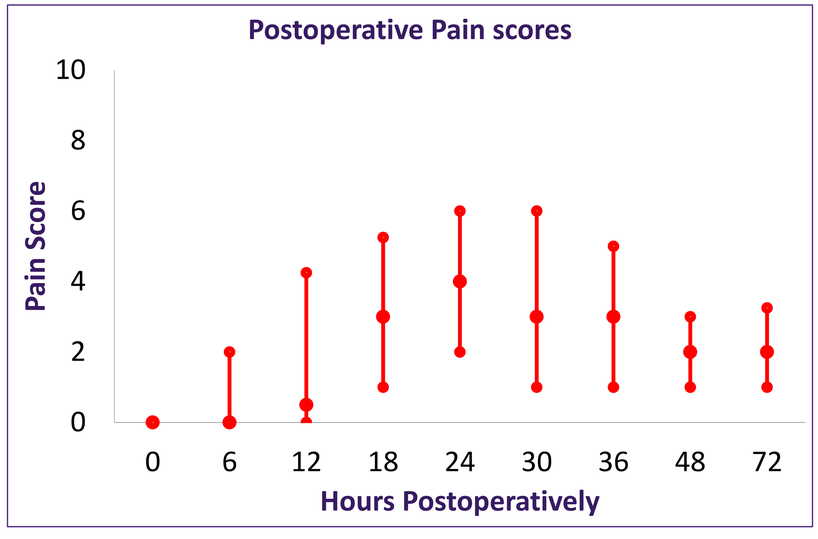

Table 2: Outcome Measures	
Intra-op narcotic use: n (%)	**1/25 (4%)**
Recovery room narcotic use: n (%)	**0/26 (0%)**
Recovery room stay h: median (IQR)	**2:00 (1:30 - 3:00)**
Time to first ambulation post-op h: median (IQR)	**19:15 (16:00 - 20:30)**
Home discharge readiness post-op h: median (IQR)	**22:15 (20:30 - 23:50)**
Home discharge actual post-op h: median (IQR)	**23:55 (22:00 - 26:00)**

Table 3: Complications		
Causes of delayed Discharge (n)	**Complications(n)**	**Post Discharge catheter issues(n)**
Asymptomatic EKG change (1)	Temporary paresthesia (2)	Dressing site leakage (3)
Surgical team delay (2)	Surgical (0)	Accidental removal (1)
Prescription filling (2)	Infectious (0)	
Catheter disconnect (1)	Falls (0)	
Pain control (1)		
Physiotherapy (2)		

Discussion

- Participants achieved discharge readiness within 23 hours and all were discharged within 48 hours, significantly sooner than the Canadian national average of 3 days. [3]
- Some delays occurred due to logistical issues around the implementation of the protocol.
- Patients experienced confusion around the use of the block pump and the complicated analgesic regimen, leading to higher than expected pain scores.
- Inclusion criteria were chosen to recruit only low risk patients; the findings may not be generalizable to all patients undergoing total knee joint arthroplasty.
- The adductor canal catheter appears to be a suitable analgesic modality to facilitate early discharge after knee arthroplasty, providing adequate analgesia without increasing risk of falls or impairing physiotherapy.

Conclusions

- Our fast track regimen successfully achieved a median home discharge readiness time of 23 hours.
- All patients achieved discharge criteria within 24:30 hours.
- 9 discharges were delayed for up to 48hrs despite achieving criteria.
- There were no medical, surgical or infectious complications.
- No patients had falls and 2 patients experienced temporary paresthesia.

References

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