



COMPARISON OF BUPIVACAINE ALONE VERSUS BUPIVACAINE WITH DEXAMETHASONE FOR IPACK BLOCK IN PATIENTS UNDERGOING TOTAL KNEE REPLACEMENT: A PROSPECTIVE OBSERVATIONAL STUDY

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ABSTRACT

Background: Total knee replacement (TKR) causes significant postoperative pain. This study compared bupivacaine alone with bupivacaine plus dexamethasone for IPACK block combined with continuous adductor canal block (CACB). **Methods:** Prospective observational study of 42 ASA I–III patients undergoing unilateral TKR. Group B received 20 mL 0.25% bupivacaine; Group BD received 20 mL 0.25% bupivacaine with 8 mg dexamethasone. All patients received CACB with 0.1% bupivacaine. Primary outcome was duration of analgesia. Secondary outcomes included VAS scores at 12 and 24 hours. **Results:** Analgesia duration was significantly longer in Group BD (18.4 ± 2.3 h) than Group B (12.1 ± 2.0 h; $p < 0.001$). VAS scores were lower at 12 h (2.4 ± 0.6 vs 4.3 ± 0.8) and 24 h (2.1 ± 0.5 vs 3.8 ± 0.7 ; $p < 0.01$). No significant adverse effects were observed. **Conclusion:** Perineural dexamethasone significantly prolongs postoperative analgesia and improves pain control after TKR.

KEYWORDS : Total Knee Replacement, IPACK Block, Adductor Canal Block, Dexamethasone, Bupivacaine.

INTRODUCTION

Total knee replacement is associated with severe postoperative pain that can delay mobilization and rehabilitation. Continuous adductor canal block provides effective anterior knee analgesia while preserving quadriceps strength. The IPACK block complements ACB by providing posterior knee analgesia. Dexamethasone has been shown to prolong the duration of peripheral nerve blocks, but evidence regarding its use in IPACK block with CACB remains limited.

MATERIALS AND METHODS

A prospective observational study was conducted over one year after institutional ethics approval. Forty-two patients aged 40–75 years, ASA I–III, undergoing elective unilateral TKR under spinal anaesthesia were enrolled. Group B received ultrasound-guided IPACK block with 20 mL 0.25% bupivacaine. Group BD received the same solution with 8 mg dexamethasone. All patients received ultrasound-guided CACB using 0.1% bupivacaine at 5 mL/hour. Duration of analgesia, VAS scores, and adverse events were recorded. Statistical significance was set at $p < 0.05$.

RESULTS

Both groups were comparable in demographic characteristics. Mean analgesia duration was 12.1 ± 2.0 hours in Group B and 18.4 ± 2.3 hours in Group BD ($p < 0.001$). Mean VAS scores at 12 and 24 hours were significantly lower in Group BD. No neurotoxicity, infection, delayed wound healing or other complications occurred.

DISCUSSION

The present study demonstrates that dexamethasone significantly prolongs the duration of analgesia and improves postoperative pain scores. These findings agree with published evidence on perineural dexamethasone. Combined IPACK and CACB provide effective motor-sparing analgesia, supporting enhanced recovery after TKR.

Limitations

The study was observational with a relatively small sample size and lacked long-term functional outcome assessment.

CONCLUSION

Adding 8 mg dexamethasone to bupivacaine for ultrasound-guided IPACK block is an effective and safe strategy to prolong postoperative analgesia when combined with continuous adductor canal block.

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