Original Research Paper

Volume - 15 | Issue - 10 | October - 2025 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Anaesthesiology

EFFECT OF ORAL PREGABALIN PREMEDICATION ON POSTOPERATIVE ANALGESIA IN PATIENTS UNDERGOING LOWER ABDOMINAL AND LIMB SURGERY UNDER SPINAL ANAESTHESIA: A RANDOMIZED CONTROLLED TRIAL

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ABSTRACT **Background And Aims:** Effective postoperative pain control remains challenging, particularly after spinal anaesthesia, where analgesia is short-lived. Pregabalin, a gamma-aminobutyric acid analogue, exhibits antinociceptive properties and may enhance postoperative analgesia. This study aimed to assess the effect of oral pregabalin premedication on postoperative pain and analgesic requirements in patients undergoing lower abdominal and limb surgery under spinal anaesthesia. **Methods:** In this prospective, randomised, double-blind, placebo-controlled trial, 60 ASA I–II patients (aged 20–60 years) scheduled for elective lower abdominal or limb surgeries under spinal anaesthesia were enrolled. Group G (n=30) received pregabalin 150 mg orally 1 hour preoperatively and 12 hours after the first dose, while Group P (n=30) received placebo. The Visual Analogue Scale (VAS) was used to assess postoperative pain. Intravenous tramadol 100 mg was administered as rescue analgesia for VAS >7. Sedation, haemodynamics, postoperative nausea and vomiting (PONV), and adverse effects were recorded. **Results:** Time to first rescue analgesic was significantly longer in Group G (16.5 ± 6.1 h) than Group P (8.1 ± 3.5 h) ($p<0.001$). Total tramadol consumption was lower in Group G (125.0 ± 46.3 mg) compared with Group P (186.7 ± 62.9 mg) ($p=0.014$). VAS scores were significantly lower in Group G at most intervals ($p<0.001$). Sedation scores were higher in Group G but without respiratory depression. Incidences of PONV and adverse events were comparable. **Conclusion:** Oral pregabalin 150 mg as premedication significantly improves postoperative analgesia, prolongs time to rescue analgesia, and reduces opioid requirements without major side effects in patients undergoing lower abdominal and limb surgery under spinal anaesthesia.

KEYWORDS : pregabalin, spinal anaesthesia, postoperative pain, analgesia, randomised controlled trial

INTRODUCTION:

Postoperative pain, when inadequately managed, can result in significant morbidity, including haemodynamic instability, poor wound healing, and delayed recovery. Despite advances in multimodal analgesia, nearly 50% of surgical patients report suboptimal pain control.[1] Spinal anaesthesia is commonly used for lower abdominal and limb surgeries but offers limited postoperative analgesia due to its relatively short duration.

Opioids and NSAIDs remain mainstays for postoperative pain management but are associated with adverse effects such as respiratory depression, nausea, vomiting, and renal complications. While regional blocks and epidural analgesia provide effective pain control, they are invasive and require technical expertise. Therefore, there is a need for safe, effective, and non-invasive alternatives.

Pregabalin, a structural analogue of gamma-aminobutyric acid (GABA), binds to the α2-δ subunit of voltage-gated calcium channels, reducing excitatory neurotransmitter release and central sensitisation.[2] Previous studies have shown that pregabalin can reduce postoperative pain and opioid consumption, though results have been inconsistent across different doses and surgical settings.[3–5] This study aimed to evaluate the analgesic efficacy of oral pregabalin 150 mg administered preoperatively and its impact on postoperative analgesia in patients undergoing lower abdominal and limb surgeries under spinal anaesthesia.

MATERIALS AND METHODS:

Study Design:

Prospective, randomised, double-blind, placebo-controlled clinical trial.

Ethics Approval:

Obtained from the Institutional Ethics Committee. Written informed consent वारे taken from all participants.

Participants:

Sixty ASA I–II patients aged 20–60 years scheduled for elective lower abdominal or limb surgery under spinal anaesthesia were enrolled.

Exclusion Criteria:

ASA grade III/IV, hepatic, renal, cardiac, or CNS disorders; uncontrolled diabetes or hypertension; chronic analgesic use; allergy to study drug; BMI >35 kg/m²; pregnancy or lactation.

Randomisation:

Patients were allocated into two groups using a computer-generated sequence (n=30 each):

Group G: Oral pregabalin 150 mg 1 hour before surgery and 12 hours after the first dose

Group P: Placebo tablet (identical in appearance) at the same intervals Anaesthesia Protocol: All patients received standard monitoring and spinal anaesthesia with 15 mg hyperbaric bupivacaine following preloading with Ringer's lactate (10 ml/kg). No additional premedication was given.

Outcome Measures:

Primary: Time to first rescue analgesia and total tramadol consumption in 24 hours

Secondary: VAS pain scores, Ramsay Sedation Scale, haemodynamic stability, incidence of PONV, adverse events, and patient satisfaction

Rescue Analgesia: Intravenous tramadol 100 mg for VAS >7.

Statistical Analysis: Data analysed using SPSS v20. Continuous variables expressed as mean ± SD and compared using Student's t-test; categorical variables compared using Chi-square test. $p<0.05$ considered significant.

RESULTS :

Demographics:Both groups were comparable in terms of age, BMI, and duration of surgery ($p>0.05$).

Table 1: Demographic Characteristics:

Variable	Group G (Pregabalin) Mean ± SD	Group P (Placebo) Mean ± SD	p-value
Age (years)	37.2 ± 11.0	40.7 ± 13.6	0.272
BMI (kg/m²)	28.6 ± 4.4	26.8 ± 2.5	0.052
Duration (min)	102.3 ± 12.8	107.8 ± 13.0	0.106

Primary Outcomes

Time to first rescue analgesia: 16.5 ± 6.1 h (Group G) vs. 8.1 ± 3.5 h (Group P), p<0.001

Total tramadol consumption: 125.0 ± 46.3 mg (Group G) vs. 186.7 ± 62.9 mg (Group P), p=0.014

Table 2: Analgesic Consumption And Time To First Rescue Analgesia

Parameter	Group G	Group P	p-value
Time to first rescue analgesia (h)	16.5 ± 6.1	8.1 ± 3.5	<0.001
Total tramadol (mg)	125.0 ± 46.3	186.7 ± 62.9	0.014

VAS Scores:
VAS scores were significantly lower in Group G at most intervals (p<0.001).

Table 3: VAS Score Comparison At Key Intervals

Time Point	Group G (Mean ± SD)	Group P (Mean ± SD)	p-value
Post-op 6 hr	2.1 ± 0.6	5.5 ± 1.4	<0.001
Post-op 8 hr	3.7 ± 0.7	6.0 ± 1.8	<0.001
Post-op 10 hr	4.6 ± 1.2	5.7 ± 1.8	0.008
Post-op 12 hr	4.5 ± 1.1	4.8 ± 1.9	0.450

Adverse Effects:
Sedation was higher in Group G but without respiratory depression. Incidence of PONV and dizziness was low and similar in both groups.

DISCUSSION:

This study demonstrates that oral pregabalin 150 mg administered preoperatively and repeated after 12 hours provides effective postoperative analgesia following spinal anaesthesia. Pregabalin significantly prolonged the time to first rescue analgesia and reduced opioid consumption compared to placebo, aligning with previous studies by Jokela et al.[3] and Agarwal et al.[4]

The sedative and anxiolytic properties of pregabalin may enhance patient comfort. The observed side effects were minimal and comparable between groups, consistent with reports by Kohli et al.[5] Higher doses of pregabalin (≥300 mg) have been linked to dizziness and somnolence,[6] but our regimen achieved analgesic benefits without major adverse effects.

Limitations:

Single-centre design, small sample size, and lack of long-term follow-up for chronic pain prevention.

CONCLUSION:

Preemptive oral pregabalin 150 mg effectively improves postoperative analgesia, reduces tramadol consumption, and enhances patient satisfaction without significant adverse effects in patients undergoing lower abdominal and limb surgery under spinal anaesthesia.

REFERENCES :

1. Rajendran I, Khan M, Kumar M. Efficacy of pregabalin for postoperative analgesia in lower limb surgery. Indian J Anaesth. 2014;58(1):37–41.
2. Taylor CP, Angelotti T, Fauman E. Pharmacology and mechanism of action of pregabalin: The calcium channel α2-δ (alpha2-delta) subunit as a target for antiepileptic drug discovery. Epilepsy Res. 2007;73(2):137–150.
3. Jokela R, Ahonen J, Tallgren M, et al. A randomized controlled trial of pregabalin for postoperative analgesia after laparoscopic hysterectomy. Anesth Analg. 2008;106(6):1797–1802.
4. Agarwal A, Gautam S, Gupta D, et al. Evaluation of a single preoperative dose of pregabalin for postoperative pain relief after laparoscopic cholecystectomy. Br J Anaesth. 2008;101(5):700–704.
5. Kohli M, Murali T, Krishnan B, et al. Effect of pregabalin on postoperative pain and opioid consumption in patients undergoing abdominal hysterectomy. Indian J Anaesth. 2011;55(3):259–263.
6. Rajappa GC, Vig S, Bevan D. The use of pregabalin for postoperative pain management: A review. Anaesthesia. 2014;69(12):1305–1315.