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EVALUATION OF ANALGESIA IN SCIATICA, WITH OR WITHOUT SCIATIC NERVE BLOCK

Anaesthesiology

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ABSTRACT

The present study was undertaken to evaluate and compare the therapeutic effectiveness of a sciatic nerve block using 0.5% ropivacaine with conventional pharmacological management combined with physiotherapy in adult patients suffering from sciatica. A total of 60 clinically diagnosed adult patients were enrolled and randomly allocated into two equal groups. Group A received standard conservative management consisting of analgesics, anti-inflammatory drugs, muscle relaxants, and structured physiotherapy, while Group B received a targeted sciatic nerve block with 0.5% ropivacaine in addition to the same conventional therapy. Pain intensity and quality were systematically assessed using validated tools, namely the Visual Analogue Scale (VAS) and the McGill Pain Questionnaire (MPQ). Baseline pain scores were recorded prior to intervention, followed by subsequent evaluations at predetermined intervals up to Day 21. Statistical analysis was performed to compare pain reduction within and between the two groups over time. The findings revealed that both groups experienced a reduction in pain intensity; however, patients in Group B demonstrated significantly greater and more sustained pain relief. Notably, the difference in pain reduction became statistically significant from Day 14 onwards, with VAS scores showing a marked decrease ($p = 0.006$) and MPQ scores indicating a substantial improvement in pain perception and quality ($p < 0.001$). These results suggest that the addition of a sciatic nerve block provides superior analgesic benefits compared to conventional therapy alone. Importantly, no major adverse effects or procedure-related complications were reported in patients receiving the nerve block, indicating that the intervention is safe and well tolerated. Overall, the study concludes that a sciatic nerve block with 0.5% ropivacaine is a safe, effective, and superior short-term treatment modality for achieving enhanced pain relief in patients with refractory sciatica, and it may serve as a valuable adjunct to standard conservative management strategies.

KEYWORDS

Sciatica, Ropivacaine, Sciatic Nerve Block, Visual Analogue Scale, McGill Pain Questionnaire

INTRODUCTION

Sciatica is characterized by pain or paraesthesia in the sciatic nerve distribution, often caused by lumbar disc herniation or spinal stenosis. The International Association for the Study of Pain (IASP) defines this as a personal experience often leading to significant functional impairment. While conservative treatments include NSAIDs and physical therapy, refractory cases may require interventional care. This study explores the efficacy of 0.5% ropivacaine, an amide local anaesthetic, in providing superior analgesia through targeted nerve blockade.

MATERIALS AND METHODS

Study Design And Participants

A prospective comparative study was conducted involving 60 patients aged 18–65 years with clinically confirmed sciatica. Institutional Ethical Committee clearance and written informed consent were obtained for all participants.

Intervention

Group A (n=30) received standard pharmacological therapy and physiotherapy. Group B (n=30) received the same therapy plus a sciatic nerve block via the classical posterior approach. Using aseptic techniques, 0.5% ropivacaine was administered by a senior consultant anaesthesiologist.

Pain Assessment

Subjective pain intensity was measured using the Visual Analogue Scale (VAS, 0–10). Comprehensive pain assessment was performed using the McGill Pain Questionnaire (MPQ, 0–78 PRI). Evaluations were conducted at baseline and on Days 3, 7, 14, and 21.

RESULTS

Demographic data were comparable between groups, with no significant differences in age or gender distribution ($p > 0.05$).

Table 1: Comparison Of VAS Scores

Time Interval	Group A (Mean ± SD)	Group B (Mean ± SD)	P-value	Significance
Base Line	7.60 1.10	8.10 1.12	0.087	Insignificant
Day 3	6.83 0.98	6.73 0.90	0.684	Insignificant
Day 7	5.20 0.92	4.97 1.06	0.369	Insignificant
Day 14	3.90 1.18	3.10 0.91	0.006	**Significant**
Day 21	2.65 1.01	1.58 0.66	0.002	**Highly Significant**

The VAS scores (0–10 scale) measure the subjective intensity of pain.

Table 2: Comparison Of McGill Pain Scores

Time Interval	Group A (Mean ± SD)	Group B (Mean ± SD)	P-value	Significance
Base Line	57.73 5.23	58.23 4.18	0.684	Insignificant
Day 3	54.23 8.71	50.56 4.97	0.050	Borderline Significant
Day 7	44.33 7.40	40.16 6.43	0.024	**Significant**
Day 14	38.86 6.61	31.10 5.92	<0.001	**Highly Significant**
Day 21	31.53 6.29	20.88 4.30	<0.001	**Highly Significant**

The MPQ scores (0–78 scale) provide a comprehensive assessment of sensory and affective pain components.

Both groups showed improvement over time; however, Group B exhibited significantly lower VAS scores starting at Day 14 ($p=0.006$). MPQ scores also favored Group B, becoming statistically significant by Day 7 ($p=0.024$) and highly significant by Day 14 and 21 ($p < 0.001$). No major complications were recorded in either group.

DISCUSSION

The study findings demonstrate that targeted interventional techniques provide improved pain management compared to conventional therapy alone. These results align with previous research by Runu et al. (2005) and Lee et al. (2006), which emphasized the effectiveness of targeted nerve interventions for sciatica relief. Ropivacaine's selective sensory blocking allowed for significant pain reduction without causing motor impairment or severe systemic side effects. The significant reduction in MPQ scores suggests improvement in both the sensory and affective dimensions of pain, contributing to higher patient satisfaction and faster functional recovery.

Based on the dissertation findings, the following tables compare the

Visual Analogue Scale (VAS) and **McGill Pain Questionnaire (MPQ)** scores between Group A (Conventional Therapy) and Group B (Sciatic Nerve Block)[1].

Summary

- **Early Phase (Days 0–7):** Both groups showed gradual improvement, but differences were mostly statistically insignificant[44444444].
- **Late Phase (Days 14–21):** Group B (Nerve Block) exhibited superior pain relief, with highly significant reductions in both VAS and McGill scores compared to Group A[45454545].
- **Complications:** No complications were recorded in either group throughout the study period[46].

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