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Comparison of Effect of Levobupivacaine (0.25%) Versus Ropivacaine (0.2%) in USG Guided Tap Block for Post-Operative Analgesia in Hysterectomy

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Abstract: ***Background: The Transversus Abdominis Plane (TAP) block is a regional anaesthetic technique targeting the nerves supplying the anterior abdominal wall. It is widely used as part of multimodal analgesia for lower abdominal surgeries. Aim: To compare the efficacy of Levobupivacaine (0.25%) versus Ropivacaine (0.2%) in ultrasound-guided TAP block for postoperative analgesia in hysterectomy patients. Methods: A randomized prospective study was conducted on 10 ASA I/II patients aged 40–60 years undergoing hysterectomy under spinal anaesthesia. Patients were divided into two groups (n=5 each). Postoperatively, a USG-guided TAP block was administered using either 20 ml of 0.25% Levobupivacaine or 20 ml of 0.2% Ropivacaine. VAS scores and duration of analgesia were recorded at 0, 1, 2, 4, 6, and 12 hours postoperatively. Results: VAS scores were initially comparable between groups. However, at 6 and 12 hours, significantly lower VAS scores and reduced tramadol requirements were observed in the Levobupivacaine group. No significant adverse effects were noted. Conclusion: Levobupivacaine (0.25%) offers superior postoperative analgesia compared to Ropivacaine (0.2%) in USG-guided TAP blocks for hysterectomy patients.***

Keywords: TAP block, Levobupivacaine, Ropivacaine, Hysterectomy, Postoperative Analgesia, VAS Score

1. Introduction

The Transversus Abdominis Plane (TAP) block is a peripheral nerve block technique that provides analgesia to the anterior abdominal wall by anesthetizing the ilioinguinal, iliohypogastric, and lower intercostal nerves (T6–L1). It is an important component of multimodal postoperative pain management in lower abdominal surgeries, including hysterectomy. Local anaesthetics like Ropivacaine and Levobupivacaine are commonly used in TAP blocks due to their favorable safety profiles. This study aims to compare their analgesic efficacy when used in equal volumes during ultrasound-guided TAP blocks.

2. Materials and Methods

Study Design and Participants:

A prospective randomized study was conducted in the Department of Anaesthesiology, MGM Medical College, Navi Mumbai. Ten female patients aged 40–60 years (ASA I/II) undergoing elective hysterectomy under spinal anaesthesia were enrolled after informed consent.

Procedure

Postoperatively, patients were randomly assigned to two groups:

- Group A (n=5): Received 20 ml of 0.25% Levobupivacaine
- Group B (n=5): Received 20 ml of 0.2% Ropivacaine

TAP blocks were administered under aseptic precautions using ultrasound guidance by a single experienced anaesthesiologist as a single-shot procedure.

Outcome Measures:

- Primary Outcome: Duration of postoperative analgesia
- Secondary Outcome: Visual Analogue Scale (VAS) scores at 0, 1, 2, 4, 6, and 12 hours
- Other Measures: Total tramadol consumption and adverse effects, if any

3. Results

VAS Scores: Both groups showed similar VAS scores up to 2 hours. However, at 6 and 12 hours, Group A (Levobupivacaine) had significantly lower scores than Group B.

Tramadol Requirement: Total tramadol consumption was lower in Group A, indicating prolonged and better analgesic effect.

Safety: No significant adverse events were recorded in either group.

4. Discussion

This study, though limited by its small sample size, demonstrates that Levobupivacaine provides longer-lasting and more effective postoperative analgesia compared to Ropivacaine when used in TAP blocks.

These findings align with similar studies in literature highlighting the advantages of Levobupivacaine in regional anaesthesia for abdominal surgeries.

5. Conclusion

Levobupivacaine (0.25%) is superior to Ropivacaine (0.2%) in providing postoperative analgesia in ultrasound-guided TAP blocks for patients undergoing hysterectomy. It results in lower VAS scores at later time points and reduced need for rescue analgesia.

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