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Original Research Paper

General Surgery

# A COMPARATIVE STUDY OF PORT SITE INFILTRATION OF BUPIVACAINE VS CONVENTIONAL ANALGESICS IN CONTROLLING POSTOPERATIVE PAIN FOLLOWING LAPAROSCOPIC SURGERIES

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KEYWORDS :

## INTRODUCTION

- Laparoscopic surgery is a widely accepted surgical technique due to its minimally invasive nature, resulting in
- reduced postoperative pain and quicker recovery times compared to open surgeries [1].
- Despite these advantages, managing postoperative pain effectively remains a critical aspect of patient care, as inadequate pain control can lead to delayed recovery and other complications [2].
- Conventional systemic analgesics, commonly used for pain management, can have undesirable side effects
- such as nausea, vomiting, and potential risk of dependency [3].
- Bupivacaine, a long-acting local anesthetic, has gained attention for its effectiveness in controlling pain with potentially fewer systemic effects when used for port site infiltration [4].
- The interest in comparing bupivacaine with conventional analgesics stems from the need to enhance patient comfort and recovery while minimizing side effects [5].

### Selection Criteria

**Inclusion Criteria:**

1. Uncomplicated cholelithiasis.
2. Interval appendicitis.
3. Laparoscopic ventral hernia repair.
4. Laparoscopic inguinal hernia repair.
5. Diagnostic laparoscopy.
6. Age > 12 years and < 65 years.
7. ASA (American Society of Anesthesiologists) Physical Status I, II.

**Exclusion Criteria:**

1. ASA III and above.
2. Allergy to NSAIDs or local anesthetics.
3. Psychiatric patients.
4. Pregnancy and lactation.
5. Previous extensive abdominal surgery.
6. Conversion to open surgery.

### Objectives

- Tostudytheanalgesiceffectof portsiteinfiltrationo f bupivacaineand conventional analgesics in laparoscopic surgeries.
- To assess the need for rescue analgesics in the early post-operative period.
- To assess pain between two groups using visual analogue score

## MATERIALS AND METHODS

- **Study Design:** Prospective, comparative study.
- **Sample Size:** Sample size for the study was determined using a standard formula for comparative studies, resulting in 38 patients per group. Calculation was based on a 95% confidence interval and an 80% statistical power, with an anticipated standard deviation of 1.01 and a margin of error set at 0.5.
- **Study Period:** 1 Year. June 2022 to May 2023
- **Place of Study:** Kanachur Institute of Medical Science.mangalore

### Methodology

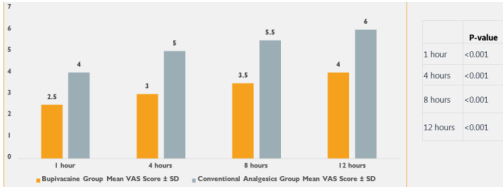
- **Study Design:** A prospective, comparative study was conducted on patients undergoing various laparoscopic surgeries at Kanachur Institute of Medical Science.Mangalore
- **Randomization:** Patients were randomly allocated into two groups, one receiving bupivacaine and the other conventional analgesics, with 38 patients in each group.
- **Pain Assessment:** Postoperative pain levels were assessed using the Visual Analogue Scale (VAS) at 1, 4, 8, and 12 hours post-surgery.
- **Rescue Analgesia:** When needed, rescue analgesia with Injection TRAMADOL 50MG IV was administered within the first twelve hours.
- **Ethical Considerations:** The study was conducted following approval from the institutional ethics committee, and informed consent was obtained from all participants.

## RESULTS

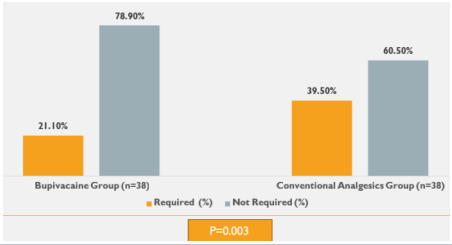
**Table 1: Participant Demographics and Baseline Characteristics**

| Characteristics | Bupivacaine Group (n=38) | Conventional Analgesics Group (n=38) | p-value |
|---|---|---|---|
| Age (years) - Mean ± SD | 45 ± 10 | 47 ± 12 | 0.45 |
| Gender - n (%) | | | |
| Male | 20 (52.6%) | 18 (47.4%) | 0.76 |
| Female | 18 (47.4%) | 20 (52.6%) | |
| Type of Surgery - n (%) | | | |
| Cholecystectomy | 15 (39.5%) | 14 (36.8%) | 0.82 |
| Appendectomy | 12 (31.6%) | 13 (34.2%) | 0.85 |
| Hernia Repair | 11 (28.9%) | 11 (28.9%) | 1 |

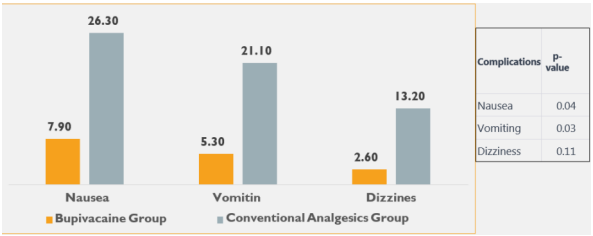
**Comparative Analysis Of Pain Scores Between Groups**




**Statistical Analysis Of Rescue Analgesic Requirements**



**Correlation Analysis Between Liver Enzymes And Blood Pressure**




| Complications | p-value |
|---|---|
| Nausea | 0.04 |
| Vomiting | 0.03 |
| Dizziness | 0.11 |

## DISCUSSION

- The significant reduction in VAS scores in the Bupivacaine group is consistent with the findings of previous studies indicating the efficacy of local anesthetics in laparoscopic surgeries. Studies like those conducted by Bisgaard et al. [6] have shown similar trends, emphasizing the role of local anesthetics in enhancing postoperative comfort.
- The lower requirement for rescue analgesics in the Bupivacaine group (21.1%) compared to the Conventional group (39.5%) aligns with the research by Gupta et al. [7], who found that local infiltration with bupivacaine significantly reduces the need for additional pain relief measures after laparoscopic surgeries.
- The relatively lower incidence of side effects such as nausea and vomiting in the Bupivacaine group mirrors findings from Rawal [8], which highlight the advantage of local anesthetics in minimizing postoperative nausea and vomiting, a common issue with systemic analgesics.

### Discussion Contd..

The comparable demographic and clinical characteristics of the study groups support the validity of the results, as noted by Wu and Raja [10], underscoring the importance of matched groups in clinical trials.

## CONCLUSION

- This study demonstrates that bupivacaine infiltration at the port site is more effective in controlling postoperative pain after laparoscopic surgeries compared to conventional analgesics.
- Patients receiving bupivacaine reported significantly lower pain scores and had a reduced need for rescue analgesics.
- Additionally, the incidence of side effects such as nausea and vomiting was lower in the bupivacaine group. These findings suggest that bupivacaine not only provides better pain management but also enhances overall patient comfort and recovery.
- While these results are promising, further research with larger sample sizes and longer follow-up periods is recommended to fully establish the benefits and safety profile of bupivacaine in postoperative pain management for laparoscopic surgeries.

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