



TO STUDY AND EVALUATE THE EFFECT OF IRRIGATION OF GALLBLADDER BED WITH BUPIVACAINE VS INTRAPERITONEAL NORMAL SALINE IRRIGATION IN THE MANAGEMENT OF POSTOPERATIVE PAIN IN THE PATIENTS UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY

Dr Ashutosh Singh Junior Resident, KMMCH

Dr Sanklap Srivastava Professor, KMMCH

Dr Bachu Srivastava Senior Resident, KMMCH

ABSTRACT

Aim & Objective:- To study and evaluate the effect of irrigation of gallbladder bed with bupivacaine vs intraperitoneal normal saline irrigation in the management of postoperative pain in the patients undergoing laparoscopic cholecystectomy. **Methods:-** The study adopts a prospective design. This design allows for the comparison of two irrigation methods, namely bupivacaine and normal saline, to assess their respective impacts on postoperative pain in laparoscopic cholecystectomy patients. **Conclusion:-** Postoperative pain management after laparoscopic cholecystectomy is an import factor for patients early recovery. It can be achieved using many methods and one among is bupivacaine irrigation over gallbladder bed which is seen in this study

KEYWORDS :

INTRODUCTION

Laparoscopic cholecystectomy is considered to be the gold standard procedure for treating gallbladder diseases. It stands out because of early recovery, brief hospital stay and can return to regular activities early. No surgery is without pain including laparoscopic surgeries but the intensity of pain is less in laparoscopic methods rather than open traditional surgeries. The pain in laparoscopic cholecystectomy is generally from visceral pain, incision site pain, shoulder tip referred pain, pain arising from irritation of phrenic nerve. Various methods like irrigating with a local anaesthetic in the skin where incision to be given pre-operatively or post-operatively blocking the sensitive afferents, intravenous NSAIDs or opioids, or irrigation of gallbladder bed with anaesthetics were studied for post-operative pain relief. Thus variable analgesic effects of, intra peritoneal instillation, infiltration over gall bladder bed, sub diaphragmatic space and sub-hepatic space irrigation have been studied. The assessment of pain intensity, time period of pain, duration can help in deciding the method of therapy and to evaluate its effectiveness.

One of the method for relieving postoperative pain in laparoscopic cholecystectomy is irrigation of gallbladder with local anaesthetic like bupivacaine. Bupivacaine is an amide local anaesthetic having a chemical name of 1-butyl-N-(2,6-dimethylphenyl)piperidine-2-carboxamide and the chemical formula is $C_{18}H_{27}NO_2$. It has an half life of 2 hours.

Irrigation over gallbladder bed with local anaesthetic showed good results in terms of pain relief postoperatively in many studies.. Bupivacaine is safe, efficacious and long lasting is used in this for irrigation over gallbladder bed in management of pain in laparoscopic cholecystectomy. The goal of the study was to provide important information for enhancing pain management techniques in this surgical context.

Aim of the Study

To study the effect of irrigation of 0.5% Bupivacaine over gallbladder in order to evaluate:

1. Pain in patients after cholecystectomy by laparoscopic approach.
2. To evaluate if any extra dose of analgesic is required.

METHODOLOGY

The following context gives an outlook of the study, the comparative impact of irrigating the gallbladder bed with

bupivacaine or normal saline in mitigating postoperative pain among individuals undergoing laparoscopic cholecystectomy. The investigation delves into the efficacy of these two irrigation methods and their influence on pain management outcomes following the surgical procedure.

3.1. Study Design

The study adopts a prospective design. This design allows for the comparison of two irrigation methods, namely bupivacaine and normal saline, to assess their respective impacts on postoperative pain in laparoscopic cholecystectomy patients. Randomization ensures unbiased allocation of participants to the treatment groups, and blinding prevents potential sources of bias in outcome assessment.

3.2. Study Location

The study was conducted at the Krishna Mohan Medical College & Hospital's department of General surgery, which was situated at (27.410873, 77.550479) Pali-Dungra, Sonkh Road, Mathura, UP, 281123.

3.3. Study Population

The target population includes OPD patients scheduled for laparoscopic cholecystectomy at Krishna Mohan medical college, Mathura.

In this study 72 patients were selected in each group of the study, and divided into two groups A and B. Patients in Group A (72) receive irrigation of the gallbladder bed with 20cc bupivacaine 5 %, while Group B (72) receives intraperitoneal normal saline irrigation during laparoscopic cholecystectomy.

3.4. Inclusion Criteria:

- All patients coming to OPD symptomatic gall stones in Krishna Mohan medical college.
- All patients willing for laparoscopic cholecystectomy.
- Age between 20 to 60 years of age .

3.5. Exclusion Criteria:

- All Patients with
- High blood pressure
- Asymptomatic gall stones
- Abdominal drain in situ
- Thrombotic diseases
- Diagnosed CBD stone
- Epilepsy

- Cardiovascular problems
- Hypercoagulable state
- ASA 3 or 4 physical status

3.6. Data Collection

After taking proper consent from the patients along with history and examination of all the study subjects. Then patients were selected into 2 groups where in one group 20cc of bupivacaine 5% was used, in other normal saline irrigation was used. In the post op room using the Visual analogue scale, Visual rating scale post op pain was assessed hourly till first four post op and thereafter at 6th, 8th, 12th and 24th hour after surgery Post operatively HR, BP, RR was assessed at overhead mentioned intervals. Vomiting, nausea, voiding problems, need of any extra analgesics for pain, respiratory difficulty if any was mentioned vide infra. analgesics was given on VSA 4-6, antiemetics for vomiting The time at which first dose of extra analgesic was recorded post operatively.

3.6. Methodology

3.9.1 Pain Assessment

Pain assessment was conducted by a "visual analogue scale" (VAS) ranging from 0 to 10. Evaluations was done patient's room at 4, 12, and 24 hours. When analgesic medication was first supplied, it was noted when it was done so.

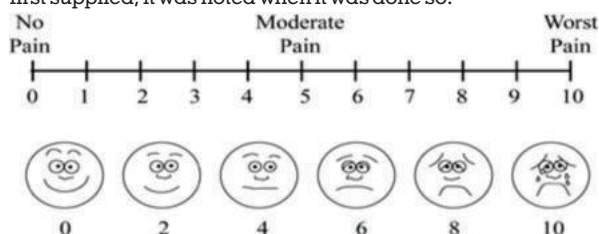


Figure 3.2 VAS (Visual Analogue Scale)

Correlation Between Visual and Verbal Scale:

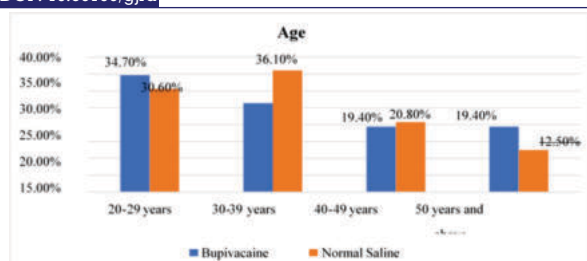
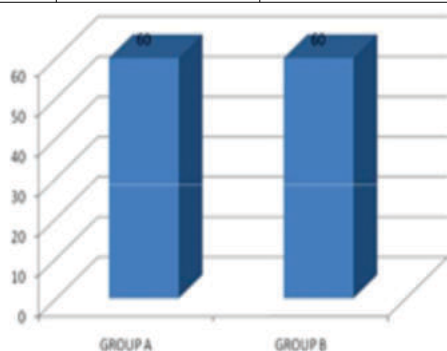
- 1-3 = mild pain; minimal impact on ADL's
- 4-6 = moderate-pain; moderate impact on ADL's
- 7-10 = severe-pain; major impact on ADL's

3.9.2 Statistical Analysis

- Data analysis involves descriptive statistics for baseline characteristics and outcome measures. Inferential statistics, such as t-tests or non-parametric equivalents, are employed. For categorical variables, chi-square tests were utilized. It was considered significant if P-values less than 0.05.

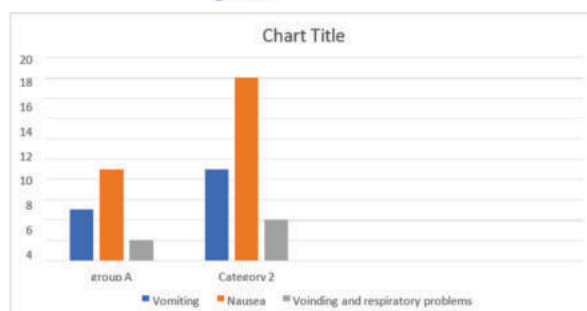
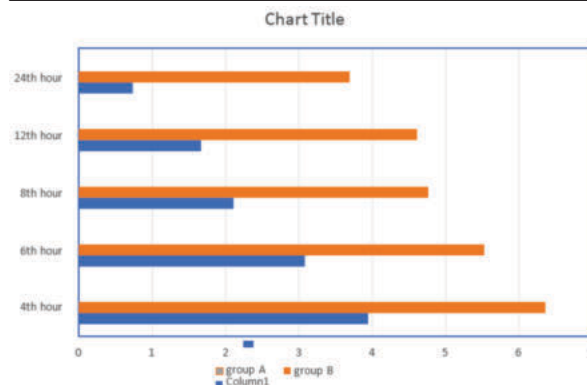
Table 1: Gender Distribution Between Bupivacaine (Group 1), Normal Saline (Group 2)

Gender	Bupivacaine		Normal Saline		p-value
	No. of Patients	Percentage	No. of Patients	Percentage	
Male	31	43.1%	33	45.8%	0.527
Female	41	56.9%	39	54.2%	0.489
Total	72		72		
Mean $\pm$ SD	1.4694 $\pm$ 0.3886		1.017 $\pm$ 0.1217		



Time after OT	Bupivacaine VAS score mean (std deviation)	Normal Saline VAS score mean (std deviation)	t-value
4 Hour	3.94444 (1.2659)	6.36111 (0.81024)	13.6435
6 Hour	3.08333 (0.91544)	5.52778 (0.83872)	16.7063
8 Hour	2.11111 (0.7971)	4.76389 (1.02769)	17.3073
12 Hour	1.66667 (0.67135)	4.61111 (0.98661)	20.9363
24 Hour	0.73611 (0.6712)	3.69444 (0.7246)	25.4149

GROUP	EXTRA ANALGESIC REQUIRED	PERCENTAGE
Group A	8	11.1%
Group B	31	43.3%



SUMMARY

A total of 144 patients who are diagnosed with benign gallbladder disease and posted for laparoscopic cholecystectomy were included in this prospective study at Krishna mohan medical college and hospital, Mathura. Out of the total population selected, they were divided into two groups of 72 each where one group received bupivacaine for gallbladder bed irrigation and the other group received normal saline. Here are the key points from the study:

1. Both groups had a higher proportion of females than males.
2. The mean ages were 36.79166667 and 37 in both groups respectively showing no statistical significance ($p > 0.05$) in receiving either of bupivacaine or normal saline for irrigation.
3. The mean duration of surgery in both the groups was 60 minutes showing no statistical significance ($p > 0.05$).
4. The pain was assessed at 4th, 6th, 8th, 12th, 24th hours

respectively using VAS score and was observed that VAS score at all the hours was less in bupivacaine group than in normal saline group which showed a statistical significance ($p < 0.001$)

5. There was no statistical significance between the two groups in regards of postoperative side effects.
6. The patients required an extra dose of analgesic in whom received normal saline and showed statistically significant.

CONCLUSION

Postoperative pain management after laparoscopic cholecystectomy is an import factor for patients early recovery. It can be achieved using many methods and one among is bupivacaine irrigation over gallbladder bed which is seen in this study. Through an examination of bupivacaine irrigation's effectiveness, the study aimed to offer evidence-based suggestions that would improve patients' postoperative recuperation following laparoscopic cholecystectomy. In the end, the goal of comparing these two irrigation techniques was to educate medical professionals about the possible advantages of adding bupivacaine irrigation to their surgical procedures in order to improve postoperative pain treatment and patient outcomes.