

Effect of instilling 1 Liter normal saline into the peritoneal cavity after laparoscopic cholecystectomy on post-op pain relief: a randomized controlled trial

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ABSTRACT

Aim: To determine the pain relieving effect of 1litre intraperitoneal normal saline among patients undergoing laparoscopic cholecystectomy.

Study design: It is a prospective randomized double blind study performed in surgical unit II of SIMS from March 2012 to Dec 2012. The 70 (48 female and 22male) patients included in the study who underwent Laparoscopic cholecystectomy were randomly divided into two groups (35 patients in control Group A; given local analgesia with Bupivacain only. 35 patients in group B Experimental Group B; given local analgesia with Bupivacain plus infiltration of 1litre normal saline intraperitoneally). Postoperatively patients of each group were evaluated for pain relief according to VAS.

Results: In 24 female patients belonging to control group A (who were given local analgesia at port site with Bupivacain only) the average pain score was 7-8 whereas in 11 male of same group A, the average pain score was 6-7, whereas In 24 females patients belonging to experimental group B (who were given local analgesia at port site with Bupivacain as well as infiltrated 1liter normal saline) the average pain score was 4-5, whereas 11 males of this group has average pain score of 3-4

Conclusion: Post operative intraperitoneal infiltration of 1 litre normal saline provides effective pain relief in patients who underwent elective Laparoscopic cholecystectomy for cholelithiasis.

Keywords: laparoscopic cholecystectomy, normal saline instillation, pain relief.

INTRODUCTION

Although pain after cholecystectomy is far less as compared to open cholecystectomy, still it is a significant problem in our surgical wards¹. Literature is full of articles showing various modes of treatment². Immediate post operative pain relief and reversal of the symptoms has been a great concern for the patient who underwent elective surgeries. Different methods and medications have been tried to deal this issue like intravenous analgesia (opioids and NSAID), intramuscular analgesia, intra-abdominal nerve blocks (TAP; transversus abdominis plane block), post operative infiltration of normal saline into the peritoneal cavity; but there is a great controversy in efficacy of available options. One of the suggested method is to see the effects of pain relief and reversal of symptoms after laparoscopic cholecystectomy by leaving normal saline intraperitoneally³. In our study we tried to investigate the pain relieving effects of leaving 1litre normal saline post operatively in patients who underwent elective laparoscopic cholecystectomy for cholelithiasis.

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MATERIALS AND METHODS

It is a prospective randomized double blind study performed in surgical unit II of Services hospital Lahore, from March to Dec 2012. The patients included in the study admitted through the OPD and were randomly divided into male and female groups. In all patients standard 4 port laparoscopic cholecystectomy was performed. Adhesions of GB (Gall bladder) were separated by electrocautery in all patients. Distended GBs were decompressed by aspiration. Cystic artery and cystic duct was identified, ligated and divided using endoclips. GB was dissected from GB fossa with the help of hook using electrocautery. GB was extracted through the umbilical port. After removal of GB, the GB fossa was washed adequately with normal saline and suctioned. In the experimental group 1 liter normal saline was instilled in the peritoneal cavity after placement of drains. The drains were kept clamped for 6 hours. After 6 hours the drains were opened to release the instilled normal saline. Wounds were sutured closed. For the control group no instillation of saline in the peritoneal cavity was done. All patients undergoing laparoscopic cholecystectomy for symptomatic gall stones were included in the study. Patients with age above 60yrs with any comorbid disease and patients who did not consent to the intervention were excluded.

Study design: It is a prospective randomized controlled trial performed in surgical unit II of SIMS from March to Dec 2012. 70 (48 female and 22male) patients were included in the study who underwent Laproscopic cholecystectomy. Patients were randomly divided into two groups; 35 patients in control Group A; given local analgesia with Bupivacain only at port sites. 35 patients in group B Experimental Group B; given local analgesia with Bupivacain⁴ at port site plus infiltration of 1litre normal saline intraperitoneally. The 70 patients who fulfilled our criterion were randomly the divided into two groups after explaining the procedure and getting the informed consent. All surgeries were performed by consultants of surgical unit II SHL. Postoperatively the VAS pain score of all patients were recorded at 6, 12, 18 and 24 hours. All data was interpreted in

SPSS ver 17.0 and Independent Sample T test was applied to compare means in each group.

Group A: The control group was given local infiltration of Bupivacain at port sites.

Group B: The experimental group was given local infiltration of Bupivacain at port site wounds plus instillation of 1 liter normal saline intraperitoneally. The fluid was retained for 6 hours after being released through the drains.

RESULTS

The average pain score in Group A at 6 hours was 7.08 and in Experimental group B was 4.17. (P value 0.001). Similarly at 12, 18 and 24 hours there was a significant decrease in pain scores in control and experimental group (Table 1). When compared separately for males and females the results were still found to be significant (Table 1).

Table 1: VAS of Group A vs. Group B

Gender	Groups	6 hours	12 hours	18 hours	24 hours
Male	Control	4.45	3.54	3.09	2.72
	Saline Treated	3.45	2.81	2.36	1.54
	P value*	0.001	0.001	0.001	0.001
Female	Control	4.67	3.62	3.25	2.70
	Saline Treated	3.66	2.70	2.08	1.62
	P value*	0.001	0.001	0.001	0.001
Total	Control	4.60	3.60	3.20	2.71
	Saline Treated	3.60	2.74	2.17	1.60
	P value*	0.001	0.001	0.001	0.001

*Independent sample T-test

DISCUSSION

Post operative pain relief is a great concern for the patient and the surgeon especially in elective laparoscopic surgeries. The origin of pain after LC is multifactorial with pain arising from incision sites (somatic pain), from the gallbladder bed (visceral pain) and as a consequence of pneumoperitoneum. Multiple methods has been tried to attain post operated analgesia like intravenous analgesia¹ (opiods and NSAID), intramuscular analgesia², intra-abdominal nerve blocks (TAP; transversus abdominis plane block)^{2,3}, intraperitoneal irrigation with bupivacain⁵, post operative infiltration of normal saline into the peritoneal cavity⁶. However the search of gold standard analgesia still continues, in this regard the intraperitoneal injection of 1litre normal saline is attempted to see its analgesic effects following laparoscopic cholecystectomy. It has been proposed on scientific grounds that immediately post operative instillation of 1 liter of normal saline results in dilution of inflammatory mediators that induce pain

by stimulating the parietal peritoneum. The inflammatory mediators; released as a result of tissue trauma during dissection, is the most important factor in inducing pain and post operative fever. In our study we tried to see the effects of placing one liter normal saline intra-peritoneally (IP) after subcutaneous administration of bupivacain³. The half life of bupivacain is upto 6 hours⁴; hence by administrating inj. bupivacain at port site we anesthetize the port sites only and attempted to observe the dilutional effects of 1litre normal saline over the pain inducing threshold of inflammatory mediators. The study showed statistically significant results; decrease in pain perception after injection of 1litre normal saline in right hypochondrium following LC. Our results suggest that the inj of normal saline intraperitoneally in right hypochondrium causes the dilution and possibly chemical alteration of inflammatory mediators (IM) which causes the significant decrease in pain perception at receptor level.

CONCLUSION

This study clearly depicts that by leaving normal saline in the peritoneal cavity there has been a statistically significant decrease in postoperative pain.

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