ORIGINAL ARTICLE

Post-Operative Pain Score in Cases with Port Site Infiltration of Local Anesthetic after Laparoscopic Cholecystectomy

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ABSTRACT

Objective: To record mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy.

Patients and Methods: After taking approval from hospital ethical committee, patients coming through OPD fulfilling the inclusion criteria were enrolled and informed consent was taken. Laparoscopic cholecystectomy was performed under general anesthesia by consultant surgeon. Patients received a total of 20 mL of 1.0% levoropivacaine at the port sites immediately after wound closure (6 mL at the epigastric port, 6 mL at the umbilical port; and 4 mL at each working port). All infusion fluid was drained after laparoscopic cholecystectomy. At the end of surgery, local anesthesia was applied to the skin, subcutis, fascia, and parietal peritoneum through the port sites. Pain score was assessed by using visual analogue scale after 6 hours of surgery.

Results: In ours study, out of 70 cases, 47.14% (n=33) were between 18-40 years of age while 52.86% (n=37) were between 41-60 years of age, mean±SD was calculated as 41.29±12.22 years, 45.71% (n=32) were male and 54.29% (n=38) were female. Mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis was 3.76±0.82.

Conclusion: We concluded that mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis is an effective alternative method for early pain control and minimize the need of opoid analgesics and the technique is very simple, easily applicable.

Keywords: Cholelithiasis, Laparoscopic cholecystectomy, Port-site infiltration of local anesthetic, Post-operative pain

INTRODUCTION

In 1987, laparoscopic cholecystectomy was introduced by Phillipe Mouret and considered as gold standard for the management of enlarged gallbladder polyps or cholelithiasis.[1] Usually, patients suffer with acute pain after laparoscopic cholecystectomy which is sharp in character, it starts after surgical trauma and ends up with healing of tissue. Though, the intensity is lower after open cholecystectomy[2] but few of the patients still experiencing a remarkable discomfort within first 24–72 hour of cholecystectomy, and may lead in longer hospital stay.[3]

Pain experienced following laparoscopic cholecystectomy derives significantly from the incisions made in the anterior abdominal wall which has segmental innervation provided by nociceptor afferents in the transversus abdominis fascial plane between the internal oblique and transversus abdominis muscles.[4,5] After laparoscopic cholecystectomy, the origin of pain is multifactorial. Pain arising from incision sites being somatic pain, whereas pain from the gallbladder bed being mainly visceral in nature, and shoulder pain is mainly due to the residual CO2 irritating the diaphragm. It is, therefore, likely that combined methods of analgesia can best reduce postoperative pain.[3]

Inadequate postoperative pain control can delay patient's recovery, lengthen the hospital stay and increase morbidity and costs.[6] Local anesthetics (LA) agents are widely in use to control pain through various routes including port-site infiltration and intraperitoneal instillation.[1] Being multimodal analgesic approach, infiltration of local anesthetics agents at wound site may relieve in pain after surgery. This is a safe, simple, low-cost and low-invasion technique.[5-6]

Symptomatic cholelithiasis is a common disease presenting in tertiary care hospitals and mostly laparoscopic cholecystectomy is used for its management. Post-operative pain is a major issue after laparoscopic cholecystectomy but in routine practice no local wound anesthetic is used. There is no local study available on this regard as per my knowledge. So, the results of my study will be helpful in creating awareness regarding the use of local wound anesthetic infiltration for the management of post-operative pain after laparoscopic cholecystectomy.

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MATERIAL AND METHODS

This multicentre study was carried out at DHQ Hospital Mirpur AJ&K and Shaikh Zayed Hospital, Lahore from 1st September 2016 to 31st March 2017. A total of 50 cases undergoing elective laparoscopic cholecystectomy for symptomatic cholelithiasis were enrolled in the study while those having history of abdominal surgery, pregnancy or lactating, acute pancreatitis, co-morbid disease i.e. diabetes mellitus, renal or hepatic impairment, valvular heart disease using oral anticoagulant drugs were excluded from this study. Laparoscopic cholecystectomy was performed under general anesthesia. Patients received a total of 20 mL of 1.0% levoropivacaine at the port sites immediately after wound closure (6 mL at the epigastric port, 6 mL at the umbilical port; and 4 mL at each working port). All infusion fluid was drained after laparoscopic cholecystectomy. At the end of surgery, local anesthesia was applied to the skin, subcutis, fascia, and parietal peritoneum through the port sites. Pain score was assessed by using visual analogue scale after 6 hours of surgery. All the information was collected on a specially designed proforma.

RESULTS

In this study, mean age was calculated as 40.74±11.11 years, age range was 20-70 years. Females were in majority by calculating 62% (n=31) while male cases were 38% (n=19). (Table 1). Mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis was 4.32±1.31.

Table 1: Gender distribution

Gender	No.	%
Male	19	38.0
Female	31	92.0

DISCUSSION

Nowadays minimally invasive surgical procedures achieved an important position in surgical practice. Laparoscopic cholecystectomy is considered as a treatment of choice for symptomatic cholelithiasis. All over the world, it becomes the commonest laparoscopic procedure in a day-care procedure for last few years. The significant benefits of the procedure include shorter hospitalization, less discomfort and earlier mobilization to normal activity.

In this study we calculated the mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis, the results of our study may be helpful for surgeons especially for post-graduate residents.

In this study, mean age was calculated as 40.74±11.11, age range was 20-70 years. Females were in majority by calculating 62% (n=31) while male cases were 38% [n=19] (Table 1). Mean post-operative pain score in port site infiltration of local anesthetic after laparoscopic cholecystectomy for symptomatic cholelithiasis was 4.32±1.31.

Yeh and others[7] recorded similar findings corresponding to our study i.e. 4±1 (2-6)7 after 6 hours of surgery.

Alam and others[8] revealed that instillation of local anesthetic on port site reduces the pain significantly after laparoscopic cholecystectomy ($p<0.05$).

Ahmad and others[9] assessed the efficacy of local anesthetic agent i.e. Bupivacaine at port-site and intraperitoneal infiltration in subjects selected for laparoscopic cholecystectomy. They concluded that intraperitoneal and port site infiltration of local anesthetic agent reduces pain significantly during first 8 hours after laparoscopic cholecystectomy.

We did not find any significant reduction in shoulder tip pain which is consistent with some other studies done by Chandrigar and others[10] and Szem et al[11]. Bisgaard and workers[12] and Michaloliakou[13] evaluated the effect of combined multiregional incisional and intraperitoneal local anesthetic blockade in two randomized trial controls.

Michaloiakou and colleagues[13] revealed a significant reduction in overall pain during the first 24 hours after the laparoscopic cholecystectomy done. We also recorded a significant difference in intensity of pain intensity in early postoperative period. Another study 22 recorded a significant reduction in overall pain and narcotic requirements however they did not record a significant effect on shoulder tip pain which is consistent to our findings.

However, this inexpensive, effective and simple technique is helpful in improving postoperative hospital stay by reducing pain after cholecystectomy and may be practiced in routine in all elective cases selected for laparoscopic cholecystectomy.

CONCLUSION

Post-operative pain relief is significant in cases with port site, intraperitoneal infiltration of local anesthetics for, however, an effective alternate method for controlling early pain and minimizing the need of opoid analgesics being very simple and easily applicable.

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