Original Article

EFFECT OF PORT SITE BUPIVACAINE INFILTRATION ON POST OPERATIVEPARENTRAL ANALGESIC REQUIREMENT IN EARLY POST OPERATIVE PERIOD AFTER LAPAROSCOPIC CHOLECYSTECTOMY

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ABSTRACT:

BACKGROUND: Post Cholecystectomy pain is a very important factor affecting administration of analgesics, delayed oral intake and making decisions of discharge while intensity of pain is relevant to patient distress.[1,18]
OBJECTIVE: To observe the effect of port- site Bupivacaine infiltration on post operative parentral analgesic requirement in patients undergoing Laparoscopic cholecystectomy.
MATERIAL AND METHODS: A total of 100 cases were included in this study and were admitted through OPD for elective laparoscopic cholecyctectomy . They were divided in to two groups. Group A (study group) received 10 mL of 0.25% bupivacaine injection in 4 ports ; 7 mL in epigastric and umbilical ports , 3 mL in the other two port sites at the end of surgery.Group B (control Group) received no Local analgesic treatment. Post operative monitoring and pain assessment was done using Wong Baker FACES pain rating scale. Inj Toradol (NSAID) 30 mg intravenous was given as recue analgesic when pain rating scale >3 was observed within 24 hours.
RESULTS: Post operative pain was reduced as a result of bupivacaine infiltration in Group A as compared to Group B.Mean abdominal pain score was maximum at 6 hours in Group A with the value of 3.5 and minimum at 1st hour value 1.7. While at 3 hours in Group B Maximum score was seen at 5.1. Group A had a lower incidence of shoulder pain in comparison with the control group although statistically not significant.
CONCLUSION: Portsite infiltration of bupivacaine significantly reduces the post chlecystectomy discomfort and pain.
KEYWORDS: Laparoscopic, Cholecystectomy, Port site bupivacaine infiltration and postoperative abdominal pain

INTRODUCTION:

In 1987 Laparoscopic Cholecystectomy was introduced by Philip Mouretand for Gall bladder stones laparoscopic cholecystectomy is the standard procedure[2] Post laparoscopic cholecystectomy pain is quite less in intensity and duration as compared to open method[3,14]. But even then the main hurdle in discharging patients and returning towards routine, normal activities is a pain[2] and effective management of the pain can shorten the hospital stay and also the time to full recovery[2].
Bisguard T et al explored that post cholecystectomy pain consists of three components: Incisional pain (somatic pain), Visceral Pain(deep abdominal pain) and shoulder pain (presumably referred visceral pain)[7].
Surgeons usually resort to the use of NSAIDS and Opioid drugs to manage the post operative pain[2], their route of administration and doses are variable[6] and their use is largely dependent

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on the situation and choice of surgeon.

The clinical significance of post operative administration of local anesthetics at port site and intraperitoneal instillation is still controversial[4].

Local anesthesia administration has helped in early discharge from hospitals provided oral analgesics given for home do not contain sedation and nauseous side effects[12].

Rapid distension of the peritoneum may be associated with tearing of small blood vessels, traumatic traction of nerves and release of inflammatory mediators[8,9].

Continuous pain can be seen in some cases, while some other cases report on and off pain of different intensity [10]

Bupivacaine hydrochloride is a local anesthetic which belongs to amide group of local anesthetics(11)with the duration of action between 4-6 hours and if used with vasoconstrictor agent, duration of action is prolonged to 6-20 hours[8,11]. It blocks sodium channels in nerve fibers and blocks the conduction of nerve impulse.

Dosage up to 2mg /kg is validated safe and secure and in case of toxicity CVS and CNS are the most affected systems[11].

Bupivacane is available in 0.25% ,0.50% and 0.75% concentrations.

Wong baker Faces pain rating scale has 6 faces and numeric values from 0-10 are assigned. 0 being no pain and 10 being severe pain .

It was originally developed for children but then extensive use in adults followed[4].

Study design: Randomized Control study

Setting : DHQ Teaching hospital Faisalabad

Period: 27 September, 2017 – 2nd May, 2018

Inclusion Criteria:

All patients operated for elective Laproscopic Chloecystectomy and recovered with out postoperative complications.

Exclusion Criteria:

- Acute cholecystitis, choledocholithiasis, or previous upper abdominal surgery, and those who were suspected with some other diseases which can effect the course of post operative pain .
- All patients where Lap. Cholecystectomy was converted in to open cholecystectomy.
- Patients who have post operative complications i.e Bile leakage, Hemorrhage, Peritonitis.

MATERIALS AND METHODS:

This randomized controlled study was done in DHQ teaching Hospital Faisalabad where 100 patients were included in the study from Sept 2017 to May 2018. Elective cholecystectomy was done for all the patients . All the patients were investigated and found fit for anesthetic intervention.

The details of procedure, the post operative pain and the use of FACES were explained thoroughly to the patients, and their informed consent was obtained prior to surgery.

Patients with acute cholecystitis, choledocholithiasis, or previous upper abdominal surgery, and those who were suspected with some other diseases particularly effecting post operative pain duration and intensity , were excluded from the study.

Two Groups were made randomly, namely A and B, A being the study group and patients included in Group A received port site local anesthesia while Group B patients(control group) did not receive the local anesthesia .

The operation was done under General Anesthesia and Endotracheal Intubation was done for all the patients and all of them were administered with the same drugs with out any exception.

Pneumoperitoneum was achieved by introduction of co2 in the abdomen by closed method and classical 4 ports were inserted.

Intraperitoneal pressure was maintained at 12 – 14 mmhg.

Administration of local anesthesia was done by infiltrating 10 ml of 0.25% bupivacane in port sites, 7 ml in epigastric and umbilical port wounds respectively and other two port wounds received 3 ml of bupivacaine respectively.

It was ensured that local anesthesia was properly administered and all the wounds were infiltrated on all sides including deep tissues. All

the injections were given before the deflation of abdomen and were closed using silk No. 1 sutures. Patients were kept in post-operative recovery in operation theatre and observed for 2 hours and once stable, were shifted to the ward.

Time that patients were received in the ward post operatively, was considered `0 hour' and subsequent time was calculated using this as reference.

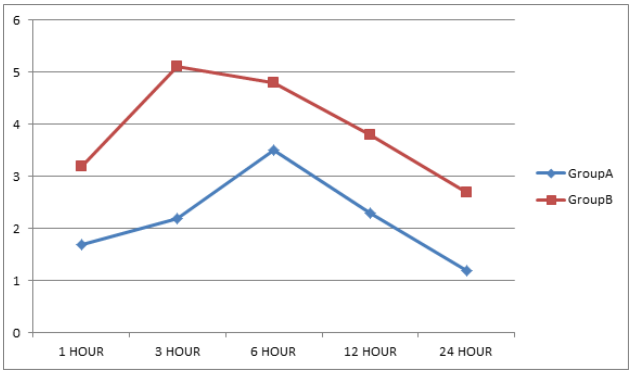
Faces scale was marked by resident doctors and record of analgesia was maintained by them on a performa which was specifically made for the study and contained all the check boxes required to attain the data.

RESULTS:

Table 1: Mean abdominal pain score for study and control groups

Time	1hr	3hr	6hr	12hr	24hr
Group A	1.7	2.2	3.5	2.3	1.2
Group B	3.2	5.1	4.8	3.8	2.7
P Value	< .01	< .0001	< .001	< .001	< .001

P values are according to T tests comparison of means



The mean pain score for study group or group A was between 1.3 to 3.5 while mean pain score for group B or control group ranges from 2.7 to 5.1

Table 2: Requirements for Rescue Analgesia .

GROUP	NO ANALGESIC	ANALGESIC
GROUP A	18(36%)	32(64%)
GROUP B	7(14%)	43(86%)

The chi-square statistic is 6.4533.
The *p*-value is .011074

18 patients of group A required no analgesia during first 24 hours of surgery while in group B such patients were 7 making 14 percent of the total account.

DISCUSSION:

Laparoscopic cholecystectomy is one of the commonest day case surgeries[4]. Although its pain is less intense and lasts for shorter time than open surgery, it remains a problem and may delay discharge of the patient; therefore, adequate early postoperative relief of pain after LC is an essential goal to enable the patient to go home early with less pain and in stable condition[2].

In this study trocar site infiltration bupivacaine was found to be advantageous to reduce the pain in initial post operative hours.

Decreasing the intensity of pain helps in early mobilization, earlier discharge from the hospitals and therefore earlier resumption of routine activities. Results in our study are same

as observed by Elhakim et al, Bhardwaj et al and Ashraf et al[7,10]. All these people found that use of local anesthesia can reduce pain significantly and also has an impact on use of analgesic medicine prescribed post operatively. While in some other studies, they found that use Local Anesthesia shows no effect at all on pain post operatively; neither does it make patients more comfortable nor do, it reduces the amount and dosage of rescue analgesia like Ure et al. and Rademaker et al[16,17] .

But it can be explained by the different concentrations and dosage regimens used and variable response of patients towards the drugs.

In our study the maximum effect of bupivacaine is seen in first 6 hours and after that we have observed a spike in pain score and also an increase in requirement of rescue analgesia afterwards.

While in control group maximum pain was observed in first three hours and then it reduced to level after 24 hours which was comparable to group A or study group.

These results are consistent with Kepner and Hozdic[13]

A similar research done in Pakistan in Sindh province in Liaqat University of medical and health sciences by Ahmad[14]agrees with our study and conclude that there is a significant pain relief by infiltration of Local Anesthetics while some studies done in neighboring country India concludes otherwise as by Guruskami[5].

CONCLUSION:

Use of Bupivacaine infiltration as local anesthesia has a significantly reduces the post operative pain in early hours especially in first 6 hours and is also plays vital role in reducing the requirement of analgesia in first 24 hours post laparoscopic cholecystectomy.

Thus we recommend its routine use for greater patient comfort, early mobilization and timely discharge of the patient from the hospital.

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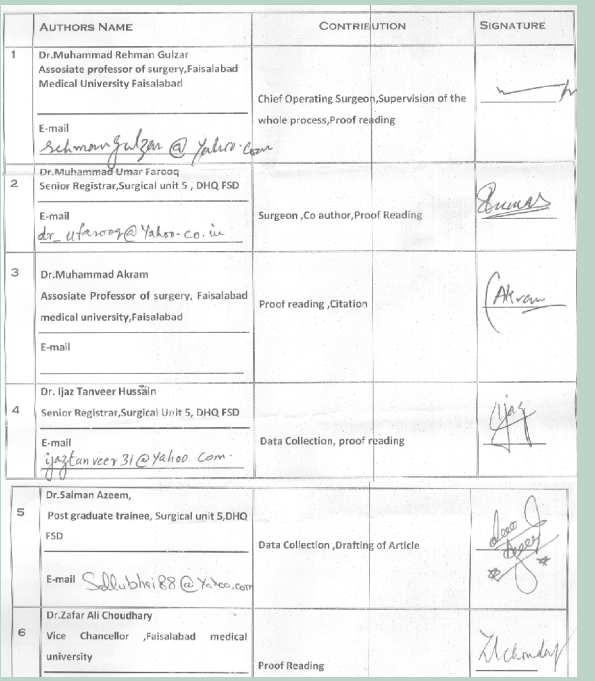

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Value of a man depends upon his courage; his veracity depends upon his self-respect and his chastity depends upon his sense of honor.

Hazrat Ali (Karmulha Wajhay)