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قسم

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Intraperitoneal Bupivacaine in Laparoscopic Cholecystectomy, Efficacy and Feasibility

Thesis

For Partial Fulfillment of Master Degree
in **General Surgery**

Presented by

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ABSTRACT

Background: Laparoscopic Cholecystectomy among the most frequently performed elective daycare surgeries. After laparoscopic cholecystectomy shoulder and abdominal pain causes considerable distress, to determine the efficacy of intraperitoneal bupivacaine instillation on management of early postoperative pain in patient undergoing laparoscopic cholecystectomy.

Aim of the Work: To determined the efficacy of intraperitoneal bupivacaine instillation on management early postoperative pain in patient with laparoscopic cholecystectomy.

Patients and Methods: This is a prospective randomized study with sample size of 50 patients underwent elective laparoscopic cholecystectomy. We recruited patients from surgery department at Agouza Hospital. We randomly assigned patients to undergo laparoscopic cholecystectomy with bupivacaine and 25 ml of physiological saline (0.9% normal saline) on liver bed or withoutbupivacaine**.**

Results: Fifty patients finally met our inclusion criteria. In bupivacaine group, mean age was 35 (± 6.6), 64% were females and 36% were males**.** While in non-bupivacaine group mean age was 37.6 (± 6.6), 68% were females and 32% were males with no statistically significant difference between both groups; age (P value=0.22) and age (P value=0.77)**,** In bupivacaine group there was significant pain reduction compared to non-bupivacaine group in terms of VAS at 2 h (p value=0.04), 12 h (p value=0.02), 24 h (, p value=0.01) and VRS at 2 h (p value<0.01), 12 h (p value<0.01), 24 h (p value<0.01). Hospital stay was lower hospital stay in bupivacaine group 0.94 (± 0.16) than non- bupivacaine group 1.21 (± 0.41) (p value<0.01). Need for additional analgesia was lower in bupivacaine group (P value <0.01).

Conclusion: Intraperitoneal route for administration of local anaesthetic is a safe and effective approach. Bupivacaine is an effective treatment option to achieve postoperative analgesic, limit the duration of hospital stay and the need for additional analgesia. But it did not significantly lower the incidence of nausea and vomiting.

Keywords: Intraperitoneal Bupivacaine in Laparoscopic Cholecystectomy, Efficacy and Feasibility

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Abb.	Full term
BDI	*Bile duct injury*
CA	*Cystic artery*
CNS	*Central nervous system*
CPR	*Cardiopulmonary resuscitation*
IPLAs	*Intraperitoneal local anesthetics*
IV	*Intravenous*
LC	*Laparoscopic Cholecystectomy*
TAP	*Transversus abdominis plane*
VAS	*Visual analog scale*
VRS	*Verbal rating scale*

AIM OF THE WORK

To determined the efficacy of intraperitoneal bupivacaine instillation on management early postoperative pain in patient with laparoscopic cholecystectomy.

INTRODUCTION

The gold standard treatment for benign gallbladder disease is Laparoscopic cholecystectomy, characterized by short hospital stay and improved surgical outcome in terms of reduced pain and convalescence compared to conventional cholecystectomy ***(Zheng et al., 2015).***

The visceral pain post laparoscopic cholecystectomy is experienced early in the postoperative period and its intensity decreases after 24 hours. The pain increases in intensity after cough but it does not change after mobilization. However, shoulder pain which is mild during early postoperative period starts to increase on 2nd postoperative day ***(Hasnain and Matjasko, 1991).***

Many methods have been tried for pain relief. These include patient controlled intravenous anaesthesia, oral opioids and opioid like pain killers, non-steroidal anti-inflammatory drugs, intravenous corticosteroids. All these drugs have their associated systemic side effects ***(Yarov et al., 2002).***

The duration of action of bupivacaine is significantly longer than other local anaesthetics with or without adrenaline. The mean duration of action of bupivacaine hydro chloride is 8.07 hours which is 2-3 times longer than lignocaine ***(Hollman, 1966).***

When the local anaesthetic drugs are given by intravenous infusion a general pattern of increasing signs and

symptoms of toxicity is discernible, which are numbness of tongue and mouth, light headedness, tinnitus, visual disturbances, muscular twitching, irrational conversation, unconsciousness, grand-mal convulsions and apnea, hypotension as a result of cardio-depression ***(Liu, 1982).***

An increase in the dose of bupivacaine while maintaining the same volume of injectate resulting decrease latency, improved incidence satisfied analgesia and increased duration of sensory analgesia. Another fact which has been observed in the use of bupivacaine is that there is a period of analgesia that persists after the return of sensation and during this period either no analgesia is required or a less strong analgesia is required to relieve the residual pain ***(Nath et al., 1985).***

Chapter 1
ANATOMY OF BILIARY TRACT

The anatomy of the biliary tract can be divided into various segments, including the intrahepatic ducts, extrahepatic ducts, gallbladder and cystic duct CD ***(Saldinger and Bellorin-Marin, 2019)***.

Intrahepatic ducts

The lobar and segmental anatomy of the liver is determined by the sequential branching of the portal vein, hepatic artery, and biliary tree as they enter the parenchyma at the hilum. All three of these structures follow approximately parallel courses and bifurcate just before entering the liver. This major bifurcation divides the liver into left and right lobes. According to ***the Couinaud classification***, the caudate lobe is segment I; segments II to IV are on the left; and segments V to VIII are on the right (Fig.1). The biliary drainage of the right and left liver is into the right and left hepatic ducts, respectively ***(Sarmiento et al., 2010).***