Quest Journals
Journal of Medical and Dental Science Research
Volume 3~ Issue 11 (2016) pp: 35-38
ISSN(Online) : 2394-076X ISSN (Print):2394-0751
www.questjournals.org

Research Paper

Laparoscopic Cholecystectomy under Spinal Anesthesia With 2% Lignocaine Instillation over Phrenic Nerve-A Single Centre Experience.

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Received 04 Dec, 2016; **A**ccepted 22 Nov, 2016© The author(s) 2016. **P**ublished with open access at **www.questjournals.org**

ABSTRACT:
Introduction: *General anaesthesia (GA) is the standard anaesthetic technique of choice for laparoscopic cholecystectomy (LC). The main reasons for selecting spinal anaesthesia (SA) as the first choice for laparoscopic cases were its advantages like muscle relaxation, a conscious patient, economically very cheap, relatively uneventful recovery after, pain free early postoperative period and the protection from potential complications of general anaesthesia.We are regularly practicing LC under Spinal anesthesia with 2% lignocaine instillation over phrenic nerve.*
Methods: *It is a retrospective study conducted at our hospital between may 2013 to april 2015. Patients undergoing laparoscopic cholecystectomy were offered SA as the first choice was included in this study. Out of 80 patients in study group all patients were female and fit for spinal anesthesia. We routinely use spinal anesthesia for females and general anesthesia for male Patients unless until otherwise contraindicated.*
Results: *Out of 80 patients, average age was 38 years. LC was performed in all patients. 28 patients Had hypotension, 32 observed anxiety, neck or shoulder pain, for which injection Butorphinol had given and 1 (0.74%) patient required conversion because of anxiety, despite sedation where as one patient required conversion to general anaesthesia due to failure of SA effect. Laparoscopic cholecystectomy required an average time of 28 minutes. Injectable diclofenac was given in 49 of patients for their abdominal pain within 2 hours postoperatively. Average time to discharge was 1.9 days.*
Conclusions: *Laparoscopic surgery done with the patient under spinal anaesthesia with 2% lignocaine instillation has several advantages. Laparoscopic cholecystectomy using spinal anaesthesia with 2%lignocaine instillation is a better alternative as there is no intubation related airway obstruction. There was excellent muscle relaxation; decreased surgical bed oozing,less shoulder tip pain,very economical and pain free early post-operative periods.*
Keywords*: Laparoscopic cholecystectomy, General anaesthesia, Spinal anaesthesia, 2% lignocaine.*

I. INTRODUCTION

Conventionally general anesthesia remains the choice for the majority of open abdominal surgical procedures, and regional anaesthesia is preferred only for patients who are at high risk while under general anesthesia. Endotracheal general anaesthesia (GA) is the anaesthetic technique of choice for laparoscopic cholecystectomy. The main reasons for selecting spinal anaesthesia (SA) as the first choice for laparoscopic cases were its advantages. The advantages of a spinal anaesthesia over general anesthesia include uniform total muscle relaxation, a conscious patient, economical, relatively uneventful recovery after, pain free early postoperative period and the protection from potential complications of general anesthesia(1,2). It was thus a logical extension that we shifted to SA for all our LC specially in female patients. The world literature until about 5 years ago suggested only general anesthesia as the anaesthetic option for abdominal laparoscopic surgery, and it is only recently that report of laparoscopic surgery being performed with select patients under spinal or epidural anaesthesia have started to appear(2-9).

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II. MATERIAL AND METHODS

This study includes 80 patients who underwent laparoscopic cholecystectomy while under SA with 2% lignocaine instillation over phrenic nerve.Out of 80 patients,all patients were females, and the average age was 38 years. Laparoscopic cholecystectomy was performed in all patients. Hypotension requiring support was recorded in 28 patients. 32 experienced anxiety, neck or shoulder pain, for which lnj Butorphinol had given. Only 1 patient required conversion because of anxiety, despite sedation where as one patient required conversion to general anesthesia due to failure of SA effect. Laparoscopic cholecystectomy required an average of 28 minutes. Postoperatively 8 patients experienced one or more vomiting episodes . We routinely catheterize all the patients undergoing LC. Injectable diclofenac was necessary in 49 patients for their abdominal pain within 2 hours postoperatively. Postural headache persisting for an average 2.3 days was seen in 8 patients and responded to caffeine intake and increased intake of fluids and salt. Average time to discharge was 1.9 days.

III. RESULTS

This study includes 80 patients who underwent laparoscopic cholecystectomy while under SA and. Out of 80 patients all were females, and the average age was 38years. Laparoscopic cholecystectomy was performed in all patients. Hypotension requiring support was recorded in 28 patients. 32 experienced anxiety, neck or shoulder pain, for which lnj Butorphinol had given. Only 1 patient required conversion because of anxiety, despite sedation where as one patient required conversion to general anesthesia due to failure of SA effect. Laparoscopic cholecystectomy required an average of 28 minutes. Postoperatively,8 patients experienced one or more vomiting episodes . Injectable diclofenac was necessary in 49 patients for their abdominal pain within 2 hours postoperatively.

IV. DISCUSSION

Regional anaesthesia is seldom used in abdominal laparoscopic surgeries except for diagnostic laparoscopies. The prime indication for using regional anaesthesia in therapeutic laparoscopy is still limited to patients unfit for general anaesthesia, and the preferred type of regional anaesthesia is epidural anaesthesia(7,9,10).Thus, reports of laparoscopic surgery being done with patients under spinal anesthesia are even scarcer than those of patient's under epidural anesthesia. The optimal anterior abdominal wall relaxation and the conscious and receptive patient under spinal anaesthesia together with our experience of spinal anaesthesia in open cholecystectomies for last four years inspired us to try out SA for all our LC. Another reason for preferring spinal anaesthesia was preventing the potential problems of general anaesthesia,we also working with a very low socioeconomic group patients so SA does not increase too much economic burden in comparison to general anesthesia.

The initial concern was never the subcostal level of anaesthesia (T4-T5) for the epigastric and subcostal posts because we had been successfully making upper abdominal incisions in open abdominal surgeries without discomfort to the patient. The pneumoperitoneum induced rise in intra-abdominal pressure including pressure on the diaphragm and carbon dioxide-induced peritoneal irritation were factors to be considered,we reduce this by injecting 2% lignocaine over phrenic nerve. We have been operating at an average pressure of 10 mm of carbon dioxide, and no changes have been necessary in port placement in spinal anaesthesia compared with general anaesthesia patients. This agrees with a recent report by Tzovaras(7).

Surprisingly anxiety, neck pain and shoulder pain have never been a major problem in present study patients. They occurred only in few patients for which injection butorphinol was given. Only one patient required conversion to general anaesthesia. According to Pursnani et al shoulder and neck pain occurred in 2 out of 6 patients who operated under epidural anesthesia, and it was easily managed(8). On the other hand, in the series of Hamad et al, 310 laparoscopic cholecystectomy were done with patients under spinal anaesthesia, and one patient was given GA because of intolerable shoulder pain(10). Chiu et al also observed shoulder pain in 1 of 11 patients of B/L spermatic varices operated on while under epidural anaesthesia(11).

The other reason for conversion in our series was an incomplete effect of spinal anaesthesia. Conversion to GA because of abdominal distension discomfort during epidural anaesthesia was reported in 1 of 11 patients in the study by Chiu et al(12). According to Ciofolo et al out of 6 patients 1 patient required conversion to an open procedure because of uncontrolled movements under epidural anesthesia, in addition to spinal anaesthesia - related hypotension, the pneumoperitoneum- induced rise in intra-abdominal pressure could be another cause for the persistence of hypotension(11). When we compared our hypotension figures recorded in 28 patients with figures in patients undergoing open surgery with spinal anaesthesia, we found a comparable picture. Thus while Bernd reported hypotension in 5.4% of their spinal anaesthesia patients, Palachewa had an incidence of 15.7%, Throngnumchai 20.2%, and Hyderally reported a 10% to 40% incidence(13-16). This then conclusively proves that the incidence of hypotension is no different whether laparoscopic surgery or open surgery is being done with spinal anaesthesia and that an intraperitoneal pressure of 8mm Hg to12mm Hg does not add to the problem of decreased venous return and persistence of hypotension. Although Chui have

mentioned that a high spinal anaesthesia block of up to T2-T4 may cause myocardial depression and reduction in venous return, this was never substantiated in our series(17). An added cardiovascular advantage cited has been the decrease in surgical bed oozing because of hypotension, bradycardia, and improved venous drainage associated with spinal anaesthesia(18).

It can be stated that spontaneous physiological respiration during Spinal anesthesia would always be better than an assisted respiration, as in gen surgery performed using general anestheia(19). Perioperative shoulder pain decreased much and never persisted in the postoperative period because of 2% lignocaine instillation over phrenic nerve. In the postoperative period after SA, there was no restlessness as is commonly seen after general anesthesia, and the patient is always receptive and more compliant to suggestions. A specific advantage of spinal anesthesia seems to be the decrease in the requirement of postoperative analgesia.

The injectable analgesic was usually required between 2 hours to 6 hours after surgery in spinal anaesthesia versus within 2 hours after extubation when general anaesthesia was used.Postural headache was seen in 8 patients persisted for an average of 2.3 days, and responded to the patient lying down and an increased intake of fluids and salt.

Complications like sore throat, relaxant-induced muscle pain, dizziness, and postoperative nausea and vomiting (PONV) often create high morbidity after general anaesthesia(18). In this context PONV is particularly troublesome, and antiemetics may be required in as many as 50% of patients, and can delay discharge from the hospital in 7% of patients(20,21).

In present study the problem with PONV was seen in 2.9% of spinal anaesthesia .Another important advantage of SA is that other complications specific to general anesthesia, including cardiac, myogenic, and possible cerebral complications do not occur with spinal anaesthesia. Average time to discharge was 1.9 days.

V. CONCLUSION

From the present study it was concluded that laparoscopic cholecystectomy using spinal anesthesia with 2% lignocaine instillation over phrenic nerve is a better alternative as there is no intubation related airway obstruction, little risk of unrecognized hypoglycaemia in a diabetic patient, excellent muscle relaxation, decreased surgical bed oozing,very less shoulder tip pain,very economical, pain free early post- operative period, a more rapid return of gut function and decreased postoperative nausea and vomiting. So we recommend to use SA with 2% lignocaine instillation over phrenic nerve specially in all female patients undergoing laparoscopic cholecystectomy particularly in the areas where cost matters.although this study require a larger trial for more confirmation.

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