

A Prospective Comparative Analysis of Surgical Outcome of Gall Bladder Surgery in Spinal and General Anesthesia: An Institutional Based Study

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Article History

Received: 11 Sept 2015

Revised: 02 Oct 2015

Accepted: 20 Oct 2015

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ABSTRACT

Background: Gallstone diseases are one of the common causes of morbidity among general population. Regional anesthesia has been used for laparoscopy in healthy patients almost exclusively in combination with general anesthesia to extend the analgesic effect during the early postoperative period. Hence; the present study was conducted for comparing the surgical outcome of gall bladder surgery in spinal and general anesthesia.

Materials & Methods: A total of 100 patients scheduled to undergo gallbladder surgery were enrolled. Complete demographic and clinical details of all the patients were obtained. A Performa was made, and all the medical history was recorded separately. Random division of all the patients was done into two study groups as follows: Group 1: Spinal anesthesia group, and Group 2: General anesthesia group. Gall bladder surgeries were conducted in both the study groups. Anesthesia was given as per their respective study groups. Intraoperative and postoperative findings were recorded and analyzed. Postoperative pain was assessed by using the Visual Analogue Scale (VAS) after completion of procedure.

Results: Mean age of the patients of group 1 and group 2 was 43.5 years and 44.9 years respectively. Majority proportion of patients of both the study group were females. Mean BMI of the patients of group 1 and group 2 was 23.8 Kg/m² and 24.1 Kg/m². Mean VAS was significantly higher among patients of group 2 in comparison to patients of group 1.

Conclusion: Spinal anesthesia was better than general anesthesia in terms of postoperative pain relief.

KEYWORDS: Gallbladder, Spinal, General.

INTRODUCTION

Gallstone diseases are one of the common causes of morbidity among general population. Prior to the employment of cholecystography (1924) the diagnosis of gall-bladder disease and associated illnesses were necessarily based upon history and examination of the patient alone. Since the advent of visualization of the gallbladder there has, perhaps, been a tendency in certain districts to operate and remove gallbladders on radiological evidence alone. It is not my intention to dilate upon this aspect of the problem except to state that, as is the case with many other laboratory examinations, unless the radiological evidence supports the clinical diagnosis operation upon the biliary tract

should not be attempted. Laparoscopic cholecystectomy (LC) rapidly replaced open cholecystectomy (OC) 20 y ago as the procedure of choice when cholecystectomy is indicated. Few randomized trials were performed comparing LC to OC given the significant difference between the 2 procedures with regard to pain, hospital length of stay, and postoperative recovery. Some investigators felt it would be unethical to subject patients to OC in a randomized trial given the benefits seen with LC.¹⁻⁴

With the advent of improved optics and video laparoscopy in the late 1980s, the technique of laparoscopic cholecystectomy was introduced and was

soon widely adopted by practicing general surgeons. Overall, over 90% of cholecystectomies are now done using the minimally invasive approach worldwide and laparoscopic cholecystectomy is now the gold standard treatment for gallstone disease. The technique of performing laparoscopic cholecystectomy has undergone subtle changes and variations in technique over the last two decades, and the basic principles have remained unchanged.^{5,6}

Regional anesthesia has been used for laparoscopy in healthy patients almost exclusively in combination with general anesthesia to extend the analgesic effect during the early postoperative period. In a randomized trial, epidurals combined with general anesthesia have been found to be more effective in lessening postoperative pain in healthy patients compared with general anesthesia alone.⁷⁻⁹

Hence; the present study was conducted for comparing the surgical outcome of gall bladder surgery in spinal and general anesthesia.

MATERIALS & METHODS

The present study was conducted for comparing the surgical outcome of gall bladder surgery in spinal and

general anesthesia. A total of 100 patients scheduled to undergo gallbladder surgery were enrolled. Complete demographic and clinical details of all the patients were obtained. A Performa was made, and all the medical history was recorded separately. Random division of all the patients was done into two study groups as follows:

Group 1: Spinal anesthesia group, and

Group 2: General anesthesia group. Gall bladder surgeries were conducted in both the study groups. Anesthesia was given as per their respective study groups. Intraoperative and postoperative findings were recorded and analyzed. Postoperative pain was assessed by using the Visual Analogue Scale (VAS) after completion of procedure. All the results were recorded and analyzed using SPSS software.

RESULTS

Mean age of the patients of group 1 and group 2 was 43.5 years and 44.9 years respectively. Majority proportion of patients of both the study group were females. Mean BMI of the patients of group 1 and group 2 was 23.8 Kg/m² and 24.1 Kg/m². Mean VAS was significantly higher among patients of group 2 in comparison to patients of group 1.

Table 1: Demographic data

Variable	Group 1	Group 2
Mean age	43.5	44.9
Mean BMI	23.8	24.1
Females (n)	32	34
Males (n)	18	16

Table 2: Comparison of VAS

VAS	Group 1	Group 2	p-value
Baseline	2.23	4.53	0.001 (Significant)
4 hours postoperative	2.11	3.96	0.000 (Significant)
8 hours postoperative	1.92	3.51	0.002 (Significant)
16 hours postoperative	1.75	3.43	0.000 (Significant)
24 hours postoperative	1.53	3.11	0.001 (Significant)

DISCUSSION

Spinal and epidural techniques can and should have a place in modern cardiac anesthesia practice and should be further investigated. Neuraxial anesthesia can be performed with local anesthetics at different doses and baricity. To obtain high spinal anesthesia, one can use high doses (20-40 mg of bupivacaine) and lumbar puncture or low doses (5 to 10 mg of bupivacaine) and thoracic puncture. Soon after its introduction, laparoscopic cholecystectomy (LC) was established as the treatment of choice for symptomatic gallstone

disease. The procedure usually requires general anesthesia with tracheal intubation to avoid aspiration and respiratory complications secondary to the induction of pneumoperitoneum.

Prospective and retrospective studies have shown that spinal anesthesia is an excellent option for LC when compared with general anesthesia.¹⁰⁻¹³ Hence; the present study was conducted for comparing the surgical outcome of gall bladder surgery in spinal and general anesthesia. Mean age of the patients of group 1 and

group 2 was 43.5 years and 44.9 years respectively. Majority proportion of patients of both the study group were females. Mean BMI of the patients of group 1 and group 2 was 23.8 Kg/m² and 24.1 Kg/m². Mean VAS was significantly higher among patients of group 2 in comparison to patients of group 1. Tiwari S et al evaluated efficacy, safety and cost benefit of conducting laparoscopic cholecystectomy under spinal anaesthesia (SA) in comparison to general anaesthesia (GA). Patients meeting inclusion criteria were randomized into two groups. Group A and Group B received general and spinal anaesthesia by standardized techniques. Both groups underwent standard four port laparoscopic cholecystectomy. Mean anaesthesia time, pneumoperitoneum time and surgery time defined primary outcome measures. Intraoperative events and post operative pain score were secondary outcome measures. Out of 235 cases enrolled in the study, 114 cases in Group A and 110 in Group B analyzed. Mean anaesthesia time appeared to be more in the GA group (49.45 vs. 40.64, P = 0.02) while pneumoperitoneum time and corresponding the total surgery time was slightly longer in the SA group. 27/117 cases who received SA experienced intraoperative events, four significant enough to convert to GA. No postoperative complications were noted in either group. Pain relief significantly more in SA group in immediate post operative period (06 and 12 hours) but same as GA group at time of discharge (24 hours). No late postoperative complication or readmission noted in either group.¹⁴

Tzovaras G et al compared spinal anesthesia with the gold standard general anesthesia for elective laparoscopic cholecystectomy in healthy patients. One hundred patients with symptomatic gallstone disease and American Society of Anesthesiologists status I or II were randomized to have laparoscopic cholecystectomy under spinal (n = 50) or general (n = 50) anesthesia. All the procedures were completed by the allocated method of anesthesia, as there were no conversions from spinal to general anesthesia. Pain was significantly less at 4 hours (P < .001), 8 hours (P < .001), 12 hours (P < .001), and 24 hours (P = .02) after the procedure for the spinal anesthesia group compared with those who received general anesthesia. There was no difference between the 2 groups regarding complications, hospital stay, recovery, or degree of satisfaction at follow-up. Spinal anesthesia is adequate and safe for laparoscopic cholecystectomy in otherwise healthy patients and offers better postoperative pain control than general anesthesia without limiting recovery.¹⁵

Bessa SS et al compared the surgical outcome of day-case laparoscopic cholecystectomy (DCLC) performed with the patient under spinal anesthesia with that performed with the patients under general anesthesia in the management of symptomatic uncomplicated

gallstone disease. One hundred eighty patients were prospectively randomized to either the spinal anesthesia DCLC group (SA-DCLC group) or the general anesthesia DCLC group (GA-DCLC group). In both groups, all procedures were completed laparoscopically. In the SA-DCLC group, there were 4 (4.4%) anesthetic conversions due to intolerable right shoulder pain, and those 4 patients were excluded from further analysis. In the SA-DCLC group, all patients were discharged on the same day. Overnight stay was required in 8 patients (8.9%) in the GA-DCLC group (P<.001). The cause of overnight stay was nausea and vomiting in 4 patients (4.4%), inadequate pain control in 3 patients (3.3%), and unexplained hypotension in 1 patient (1.1%). Readmission was required in 1 patient (1.1%) in the GA-DCLC group. The difference in patient satisfaction scores with regard to both anesthetic technique and same-day discharge was not statistically significant between the two groups studied.¹⁶

CONCLUSION

Spinal anesthesia was better than general anesthesia in terms of postoperative pain relief.

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How to cite the article: Islavath Pandu, G. Johnson Devasahaya Raj. A Prospective Comparative Analysis of Surgical Outcome of Gall Bladder Surgery in Spinal and General Anesthesia: An Institutional Based Study. *Int J Med Res Prof*. 2015, 1(3); 272-75.