

Injectable Tramadol vs Diclofenac for Postoperative Pain Management in Laparoscopic Cholecystectomy Surgery: A Comparative Prospective Study

¹Kunal Chowdhary, ²Muzzafar Zaman, ³Rahul Yadav, ⁴Ashish K Choudhary, ⁵Preeti Grewal, ⁶Ashutosh Bawa, ⁷Aliya Shah

ABSTRACT

Introduction: Laparoscopic management of gallstones is considered as the gold standard treatment nowadays and is the most common surgery done in the present scenario. Postoperative pain remains one of the most common complaints after laparoscopic cholecystectomy and should be managed with proper analgesia with minimal side effects.

Aim: To compare the efficacy of injectable tramadol and diclofenac in the pain management after laparoscopic cholecystectomy surgery.

Materials and methods: A randomized prospective study was done at Maharishi Markandeshwar College of Medical Science & Research in the Department of General Surgery on 50 patients undergoing laparoscopic surgery between December 2016 and December 2017. Postoperative analgesic is decided randomly with the help of dice. Pain is measured on visual analog scale (VAS) on 6, 12, 18, and 24 hours.

Results: A total of 50 patients, divided in two groups I and II, were taken in this study from December 2016 to December 2017 who underwent laparoscopic cholecystectomy. Group I was given injection diclofenac and group II was given injection tramadol postoperatively for pain management 8 hourly. Both I and II groups were matched in all respect with age, weight, and operative time. Pain relief after diclofenac first dose postoperatively in 8 hours was seen in 7 patients, in 9 to 16 hours in 12 patients, and 17 to 24 hours in 18 patients. Pain relief after tramadol first dose postoperatively in 8 hours was seen in 16 patients, in 9 to 16 hours in 21 patients, and 17 to 24 hours in 25 patients. Postoperatively, patients complained of nausea and vomiting. Group II having tramadol infusion complained of higher incidence of nausea and vomiting as compared with group I having diclofenac for pain management.

Conclusion: Pain after laparoscopic cholecystectomy is a common complaint encountered. Good analgesia should be given to patients but should have minimal side effects. It was concluded from our study that tramadol in injectable form is

a better option than diclofenac for pain relief and comfortable postoperative period.

Keywords: Diclofenac, Laparoscopic cholecystectomy, Pain, Tramadol.

How to cite this article: Chowdhary K, Zaman M, Yadav R, Choudhary AK, Grewal P, Bawa A, Shah A. Injectable Tramadol vs Diclofenac for Postoperative Pain Management in Laparoscopic Cholecystectomy Surgery: A Comparative Prospective Study. *World J Lap Surg* 2018;11(1):5-7.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

Laparoscopic cholecystectomy is the most common minimal access procedure performed by surgeon nowadays. Laparoscopic cholecystectomy is considered as the gold standard and treatment of choice for gallstone disease.¹ In the postoperative period, pain is the most common complaint seen.² For the management of pain, various medications are used. Diclofenac is a nonsteroidal anti-inflammatory drug of phenyl acetic acid class having antipyretic, anti-inflammatory, analgesic effects. Diclofenac has greater property to inhibit cyclooxygenase (COX)2 enzyme than COX1.³ Tramadol acts by inhibition of neuronal uptake of norepinephrine and serotonin at synapses in the descending inhibitory pain pathways. Tramadol is derived as a synthetic analog from codeine.⁴ This study is done to compare the efficacy of tramadol and diclofenac in the pain management in laparoscopic cholecystectomy.

MATERIALS AND METHODS

A randomized prospective study was done at Maharishi Markandeshwar College of Medical Science & Research in the Department of General Surgery on 50 patients undergoing laparoscopic cholecystectomy. Patients were divided into two groups randomly, I and II. Each group contained 25 patients; group I was given diclofenac and group II was given tramadol postoperatively for pain management 8 hourly. Patients were selected randomly with the help of dice for the type of analgesia selection. Patients having drug reaction history with tramadol and diclofenac were excluded. Patients were explained about the procedure, VAS score, and written informed consent

^{1,2}Assistant Professor, ³⁻⁷Postgraduate Student

¹⁻⁶Department of General Surgery, Maharishi Markandeshwar Institute of Medical Sciences & Research, Ambala, Haryana India

⁷Department of Microbiology, Maharishi Markandeshwar Institute of Medical Sciences & Research, Ambala, Haryana, India

Corresponding Author: Muzzafar Zaman, Assistant Professor Department of General Surgery, Maharishi Markandeshwar Institute of Medical Sciences & Research, Ambala, Haryana India, Phone: +918059931554, e-mail: muzzafarzaman@yahoo.com

was taken before the surgery. All patients underwent standard preanesthetic check-up, and intubation was done with standard protocol. The same line of management was used for all patients pre- and intraoperatively. Laparoscopic cholecystectomy was performed with standard 4-port technique. Insufflation was done with CO₂ and intraperitoneal pressure was maintained at 14 mm Hg. Postoperatively 100 mg of tramadol and 75 mg of diclofenac were given intravenously according to the patient group distribution 8 hourly, and patient pain was measured on VAS on 6, 12, 18, and 24 hours. Additional complaint other than pain was managed in both the groups.

RESULTS

Totally 50 patients, divided into two groups I and II, were taken in this study from December 2016 to December 2017 who underwent laparoscopic cholecystectomy. Group I was given injection diclofenac and group II was given injection tramadol postoperatively for pain management 8 hourly. Both I and II groups were matched in all respects with age, weight, and operative time. Patients ranging from age 18 to 70 years were taken in this study. The average age in group I was 36.2 years and that in group II was 40 years. The average weight in two groups I and II is respectively, 62.2 and 64.1; 64.2 and 66 minutes is the average time taken in both groups I and II respectively (Table 1). Pain relief after diclofenac first dose postoperatively in 8 hours was seen in 7 patients, in 9 to 16 hours in 12 patients, and 17 to 24 hours in 18 patients. Pain relief after tramadol first dose postoperatively in 8 hours was seen in 16 patients, in 9 to 16 hour in 21 patients, and 17 to 24 hours in 25 patients (Table 2). Postoperatively, patients complained of nausea, vomiting, and gastritis. Group II having tramadol infusion complained of higher incidence of nausea and vomiting as compared with group I having diclofenac for pain management.

Table 1: Parameters of patients in groups I and II

Variable	Group I (diclofenac) (n = 25)	Group II (tramadol) (n = 25)
Mean age	36.2	40
Mean weight	62.2	64.1
Male/female	12/13	14/11
Mean surgical time	64.2	66

Table 2: Pain relief in groups I and II after injectable diclofenac and tramadol

Pain relief	Group I (diclofenac) (n = 25)	Group II (tramadol) (n = 25)
0–8 hourly	7	16
9–16 hourly	12	21
17–24 hourly	18	25

Table 3: Postoperative side effects

Variable	Group I (diclofenac) (n = 25)	Group II (tramadol) (n = 25)
Nausea/vomiting/ sedation	2	10
Gastritis	6	2

Group I having diclofenac has higher incidence of gastritis as compared with group II having tramadol management (Table 3).

DISCUSSION

The advent of laparoscopic cholecystectomy was a milestone achievement in the treatment of gallstones.⁵ Laparoscopic cholecystectomy is the gold standard treatment for the management of symptomatic gallbladder.⁶ Postoperative pain management is an essential component in surgical patients; if pain management is not done effectively, it may lead to increase in morbidity.^{7,8} Good analgesia can decrease morbidity and decrease hospital stay postoperatively.⁹ A similar study conducted by Sinha et al¹⁰ revealed higher benefit of tramadol over diclofenac in terms of postoperative pain without any major adverse event. In the early hours of postoperative period, visceral pain is a major cause of pain. Intensity progressively decreases with postoperative hours if good analgesia is given. Postoperatively, laparoscopic cholecystectomy visceral pain is not intensified by mobilization as mobilization only requires movement of abdominal muscle, not the visceral movement. On the contrary, cough causes displacement of the liver and viscera resulting in movement of operated site of cholecystectomy causing pain. The visceral pain is more severe than parietal pain in laparoscopic cholecystectomy, leading to limited damage to the abdominal wall.¹¹ The study concluded that tramadol is a better management than diclofenac for managing pain in postoperatively laparoscopic cholecystectomy. But patients with tramadol management have higher incidence of side effects (nausea/vomiting). Postoperative prophylactic management of opioids is not usually preferred due to the high rate of side effects.¹² Gousheh et al¹³ conducted a study in which, to overcome the side effect of opioids, paracetamol was used in postoperative laparoscopic cholecystectomy period. Opioids consumption was reduced when paracetamol was used and opioids' side effects were reduced. Brodner et al¹⁴ conducted a study on a total of 196 patients. The nonopioid analgesics and paracetamol had similar efficacy. Surgical pain was reduced with all nonopioids compared with placebo; there was no effect on associated pain. Piritramide dosage and incidence of side effects were not reduced.

CONCLUSION

In this study, we concluded that the patients receiving injectable tramadol had smooth postoperative period after elective laparoscopic cholecystectomy as compared with diclofenac with minimal side effects.

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