

Original Article

COMPARATIVE STUDY BETWEEN TRAMADOL AND KETOROLAC IN POST-OPERATIVE ANALGESIA IN CHOLECYSTECTOMY IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: The aim of the study is to compare the analgesic efficacy of Tramadol (TRA) to that of Ketorolac (KET) administered I. V. and at fixed times over 24 h after open cholecystectomy.

Methods: The study enrolled 50 ASA I and II patients between 30-60 y of age of either sex undergoing open cholecystectomy. Two treatment groups were formed with 25 patients in each group which received Tramadol and Ketorolac. The pain score was measured using Visual Analog Scale (VAS).

Results: Statistical analysis was done by t-test, in which onset of action, duration of action, number of rescue analgesics required and VAS score was compared.

Conclusion: Tramadol is better analgesic than Ketorolac.

Keywords: Analgesic, Tramadol, Ketorolac

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INTRODUCTION

The present study was conducted to find out quicker, prolonged and safer analgesic during post-operative period to open cholecystectomy. It is a clinical comparative study of efficacy, safety and patient satisfaction to widely used analgesics-Tramadol and Ketorolac.

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. It is usually initiated by a noxious stimulus and is transmitted to the central nervous system via a specialized neural network, where it is interpreted as such [1]. Post-operative pain is a hindrance in the recovery of the patient. It is a limiting factor and may lead to the following effects such as hemodynamic instability, decreased functional residual capacity and increased work of breathing, atelectasis, hypoxemia, sepsis, poor wound healing and wound gaping, opioid consumption and its adverse effects, post-operative paralytic ileus, poor healing of anastomosis site, prolonged hospital stay, and increased morbidity.

Tramadol HCl is a synthetic, centrally-acting analgesic. It has no anti-inflammatory activity and it is one of the most interesting and useful weak opioids for treatment of moderate to moderately severe pain. It has μ -receptor agonist properties and noradrenergic and serotonergic neurotransmission effects [2-8].

Ketorolac (KET) is a potent intravenous NSAID and a non-selective cyclo-oxygenase inhibitor which mediates pain, inflammation and fever [9]. It has been evaluated and used for the treatment of moderate to severe pain, including post-operative pain [10].

The present study is a clinical comparative study of efficacy, safety and patient satisfaction to these widely used analgesics.

Visual Analog Scale was used for the assessment of pain, and the score was recorded.

MATERIALS AND METHODS

The study was carried out at G S Medical College and hospital with approval from IEC. Informed consent was taken from the patients to ensure informed participation of the patients.

The study is a controlled, double-blind, Randomized clinical trial.

The study enrolled 50 ASA I and II patients between 30-60 y of age of either sex undergoing open cholecystectomy.

Patients excluded from the study were those with a history of bleeding dyscrasias, gastric/duodenal ulcers or of allergic to drugs in the study or if an operation was performed because of tumour.

Groupings

Two treatment groups were formed with 25 patients in each group.

Group TRA--received Tramadol 100 mg I. V. 6 hourly.

Group KET--received Ketorolac 300 mg I. V. 6 hourly.

The pain score was measured using Visual Analog Scale (VAS) score 1-10. Rescue analgesics were given at VAS score-3.

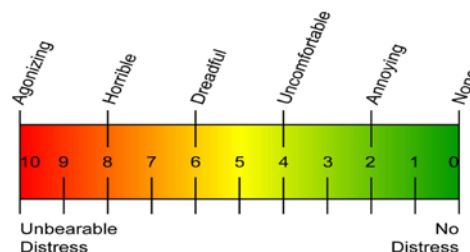


Fig. 1: Visual analog scale (VAS)

Assessment is done using following parameters-

1. Time of onset of action.
2. Duration of action.
3. Quality of analgesia
4. Rescue analgesics if required

5. Complications if any.

The sedation was measured by Sedation score as below-

Sedation score

0 = Alert, 1 = sometimes drowsy/easily aroused, 2 = often drowsy/easily aroused, 3 = often drowsy/difficult to arouse.

Statistical analysis

Statistical tests were done by t' test. P<0.05 was considered significant.

RESULTS

The results shown in Tables below shows the distribution of patients which received Tramadol (TRA) and Ketorolac (KET). Total 25 patients received each drug as shown in table 1. Table 2 shows onset of action of Tramadol is 1 hour and that of Ketorolac is 30 min. whereas the duration of action of Tramadol was 6 h and that of Ketorolac is 4 h. The VAS score in 1st 6 h is significant, while VAS score over 24 h is non-significant, as shown in table 3 and 4. The results shows that complications are more in case of Ketorolac as shown in table 5.

Table 1: Distribution of patients which received the drugs

Group	Age mean+/-SD	Sex	Body weight kg mean+/-SD	No. of patients
TRA	46.3+/-7.7	Males = 5, Females =20	55+/-6.1	25
KET	4.4+/-8.3	Males = 7, Females = 18	60+/-3.4	25

Table 2: Onset of action and duration of action of the drugs

Group	No. of patients	Onset of action in hours	Duration of analgesia in hours	Total doses
TRA	25	1	6	4
KET	25	1/2	4	4

Table 3: VAS score in first 6 h

Vas score	Group TRA mean+/-SD	Group KET mean+/-SD
In first 6 h	2.13+/-1.19	2.93+/-1.01
P<0.05 (Significant)		

Table 4: VAS score in 24 h

Vas score	Group TRA mean+/-SD	Group KET mean+/-SD
In 24 h	3.8+/-1.01	4.6+/-1.03
P = 0.05 (non-significant)		

Table 5: Complications

Group	Nausea/vomiting	Epigastric pain	Sedation	Respiratory depression
TRA	2	1	2	0
KET	9	15	0	0

DISCUSSION

The present study was conducted to compare the analgesic efficacy of Tramadol (TRA) to that of Ketorolac (KET) administered I. V. and at fixed times over 24 h after open cholecystectomy. After dividing the patients into two groups, TRA 100 mg I. V and KET 300 mg I. V was administered every 6 h to the patients post-operatively.

VAS score was obtained and data used to obtain results

In the study, it was found that the onset of action in Group TRA was found to be 1 hour whereas the onset of action in Group KET was 30 min. Duration of action in Group TRA was 6 h and in Group KET, it was 4 h. Number of rescue analgesics required in Group TRA was 0 and number of rescue analgesics required in Group KET was 6.

VAS score comparison in 1st 6 h is significant, while VAS score over 24 h is non-significant.

Complication

Nausea/vomiting epigastric pain more in Group KET, while sedation more in Group TRA. Respiratory depression is none in both the groups.

CONCLUSION

Ketorolac has a quicker onset of action but has more side effects. The sedation with Tramadol is mild and harmless as it is not associated

with respiratory depression. Tramadol is a better i. v. analgesic than Ketorolac in terms of duration of action and the quality of analgesia as shown by the comparison of VAS score in 1st 6 h following surgery is significant.

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Nil

AUTHORS CONTRIBUTIONS

Dr. Shipra Kaushik and Dr. Shobhit Kaushik contributed in the concept and design of the study and in analysis of data. Drafting and revision of the manuscript was done by Dr. Jayant Rai and Dr. Harshwardhan.

CONFLICTS OF INTERESTS

Declared none

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