

Comparison of Tramadol and Ketorolacin Postoperative Pain After Maxillofacial Surgery

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Postoperative
Pain

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ABSTRACT

Objective: To compare Tramadol and Ketorolac in the management of postoperative pain following maxillofacial surgery.

Study Design: Comparative cross sectional study

Place and Duration of Study: This study was conducted at the Department of Oral and Maxillofacial Surgery, Liaquat University of Medical and Health Sciences (LUMHS), Jamshoro from November 2017 to July 2018.

Materials and Methods: Total hundred patients were recruited. Patients were divided in 2 equal groups by random allocation. Group 1 received ketorolac 30 mg (Trometh 30mg) intramuscular I.M. after the surgical procedure and group 2 received tramadol 100mg (Tramadol 100mg) intramuscular. Pain was evaluated using visual analog scale (VAS) during 2nd, 4th, 6th, 12th and 24th hours from the end of surgical procedure and recorded on Performa.

Results: Total 100 patients were included in this study. After receiving tramadol injection, 6% patients felt no pain after 2 hours while only 2% patients felt severe pain after 12 hours. While after receiving ketorolac injection, 2% patients felt no pain after 2 hours while in 4% patients felt severe pain after 12 hours. Mean score of pain after 24 hours was 1.09 ± 0.30 in Tramadol group while in ketorolac group is 3.70 ± 0.45 Results were statistically significant P value 0.01.

Conclusion: Tramadol is a better pain killer and anti-inflammatory drug having longer duration of action to control post-operative pain and swelling after maxilla-facial surgery and is more effective than ketorolac.

Key Words: Ketorolac, Maxillofacial surgery, Pain, Tramadol

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INTRODUCTION

Surgery in the region of maxillofacial area needs comprehensive knowledge of anatomy, physiology and special training to deal many diseases, defects and maxillofacial trauma. Pain is an unwanted physical and emotional experience linked with tissue injury. Millions of cells are injured during oral surgical procedures which stimulate inflammatory cascade, releasing chemical mediators that activate the pain stimuli.¹ To decrease postoperative pain (POP) in Oral & Maxillofacial surgery analgesics are predominantly prescribed worldwide.

Analgesics are classified as opioids and non-steroidal anti-inflammatory drugs (NSAID's)². NSAID's act by preventing the cyclooxygenase (COX) enzymes which has key role in the production of prostaglandins but it may cause irritation and bleeding in gastrointestinal tract.³ Opioid analgesic act by mimicking endogenous endorphins by stimulating opioid receptors in the central and peripheral nervous system which results in relief of pain.¹

The ideal post-operative medicine is that who have analgesic effect for longer time, easy to use, not dangerous to any organ system and economical. Control of post operative pain is paramount for normal recovery and in post operative hospital stay period but without undesirable side effects such as respiratory distress, Gastro-Intestinal tract, visceral motility, coagulation abnormality, drug tolerance and drug dependence.^{1,4,5}

Tramadol drug is a centrally acting analgesic with no relevant effects on respiratory or cardio-vascular system as other opioids. The drug can be safely used in patients with mild cardiopulmonary function, overweight and smokers, or having liver and kidney diseases. Incidence of adverse effect ranges from 1.6 to 6.1%. Nausea, dizziness, drowsiness, sweating, vomiting and dry mouth are and should be avoided in head injury patients.^{1,3, 6-8}

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Ketorolac is a member of pyrrole group of NSAID's; it acts against pain, swelling and fever. Ketorolac is usually used for moderate to severe postoperative pain. Hypersensitivity is the prime contraindication.¹ But it is well tolerated by patients, minimal amount of metabolism & decrease other side effects which are associated with NSAID's.⁹⁻¹²

The common procedures of Maxillofacial surgery are being performed are management of trauma patient, removal of cyst and tumors and ontological surgeries average time needed is between 3-5 hours.¹³ Post-operative pain is always felt as acute due to surgical insult to tissue, and duration of surgery. The researchers are continuously in search for many years for the aim to identify a more-effective analgesic for application after surgery.

The purpose of this study was to evaluate the efficacy of tramadol & ketorolac and more suitable for postoperative pain control, cost effective following maxillofacial surgery. The results of this study will help the professional / OMS for better management of post operative pain in Oral & Maxillofacial Surgery patients.

MATERIALS AND METHODS

This study was conducted in the O&MFS Department, LUMHS Jamshoro from November 2017 to July 2018. Total hundred patients were recruited. The simple random technique was used to select the patients for management of pain. The inclusion criteria of study were patient with maxillofacial trauma, patients with age from 12 to 65 and of either gender. Patients with history of hypersensitivity to tramadol or ketorolac, or patients with peptic ulcer, pregnant or breast feeding females were excluded.

Approval was sought from ethical committee. Written informed consent was taken from patients. Patients were divided into 2 groups by even & odd allocation. Group A received Ketorolac 30 mg (Trometh 30mg) intramuscular after the surgical procedure and repeated after 8 hrs and 16 hours from the end of the operation. Group B received Tramadol 100mg (Tramal 100mg) intramuscular after the surgical procedure and repeated after 8 hrs and 16 hours from the end of the operation. Pain assessment was done by verbal rating using Visual

Analog Scale. 10, 11 [0-1= No pain, 2-4= Mild pain, 5-7= Moderate pain, 8-10 =Severe pain]. Pain was assessed during 2nd, 4th, 8th, 12th and 24th hours after the surgical procedure and recorded on Performa. Data was analyzed by SPSS version 17.0. Frequency and percentage were calculated for categorical variables like gender. Mean + S.D were calculated for continuous variables like age, pain. To compare both groups independent t-test was applied. P value <0.05 was considered as significant statistically.

RESULTS

Total 100 patients were divided equally in 2 groups. One group received tramadol while other group received Ketorolac. Mean age was 33.33± 12.49 years. Males were 71% and females were 29% (Table-1) The preoperative pain recorded taking the values of Visual Analogue Scale (VAS) as No pain (29%), Mild (59%), Moderate (8%) and severe (4%) (Figur-1) The comparisons of both groups are illustrated in table 3. All patients were monitored at the 2nd, 4th, 8th, 12th, and 24th post-operatively hour. Tramadol represent promising effect on pain control

Table No.1: Gender Distribution

Gender	Frequency	Percentage %
Male	71	71%
Female	29	29%

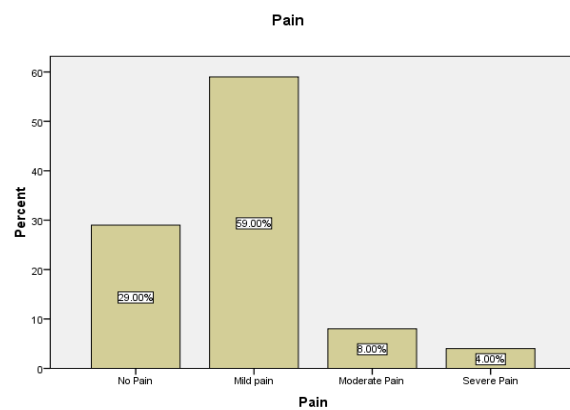


Figure No.1: Descriptive statistics of Pre operative pain

Table No.2: Comparison of post operative pain with treatment groups at different time duration

Group	Ketorolac			Tramadol			P value
	No Pain	Mild Pain	Moderate Pain	No pain	Mild Pain	Moderate Pain	
Pain after 2hours	2 (4%)	30(60%)	18(36%)	3(6%)	40(80%)	7(14%)	0.036*
Pain after 4 hours	1(2%)	40(80%)	9(18%)	1(2%)	46(92%)	3(6%)	0.169
Pain after 8 hours	1(2%)	45(90%)	4(8%)	0(0%)	50(100%)	0(0%)	0.027*
Pain after 12 hours	41(82%)	9(18%)	-	49(98%)	1(2%)	-	0.004**
Pain after 24 hours	46(92%)	4(8%)	-	50(100%)	0(0%)	-	0.017*

DISCUSSION

In spite of advances in medical sciences still not a single drug has ideal post operative analgesic affect. Postoperative pain may have consequences of surgery that ultimately contribute increased in-hospital stay.¹⁴ In this study postoperative pain of maxillofacial surgery was managed with two types of drugs: NSAIDs and Narcotic analgesics.

Par-entral route is more effective & reliable route for pain control in any kind of surgery under general anesthesia. Numbers of studies are published to compare efficacy of different analgesics used to control postoperative pain in maxillofacial surgeries.^{14, 16, 19}

The Results of this study suggest that tramadol has adequate analgesic effect and also decreased the intensity and duration pain after maxillofacial surgery, which is an agreement with the study conducted by Shankariah et al¹⁵.

In this study very low moderate and severe pain was found in tramadol group as compare to Ketorolac group on the overall comparison of both groups. Tramadol showing significant better results as compare to ketorolac. Zackova M et al¹⁶ reported that there is no difference statistically between the groups in the pain scores measured. Shankaria et al¹⁶ reported marked decrease in pain intensity on follow up period in these two drugs, Tramadol was better pain control than its counterpart in post-operative hour ($P < 0.050$).

In this study after 2 hours mild pain was 60% and 80% moderate pain was 36% and 14% in ketorolac and tramadol group respectively showed the statistically significant difference of pain and after 4 hours mild pain was 80% and 92%, moderate pain was 92% and 6% respectively in ketorolac and Tramadol group showed the in-significant results. There was no moderate pain in both groups after 12 hours, while after 24 hour's there was no mild as well as moderate pain in tramadol group after 24 hours showing the statistically significant reduction of pain. Our results are similar to Shaik MM et al and Degala S, Passi D, et al^{17,18,19}. Similarly some other studies also stated that Tramadol is better analgesic with little risk of development of tolerance or physical dependence.^{20,21}

CONCLUSION

Within the light of limitations of current study, it was concluded that tramadol is better drug in terms of pain relieving and duration of action after maxillofacial surgery as compared to ketorolac

Author's Contribution:

Concept & Design of Study: Kashif Ali Channar
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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