

A comparative study of tramadol versus ketorolac in pain management following third molar surgery

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ABSTRACT: Background: *The present study was conducted to compare tramadol versus ketorolac in pain management following third molar surgery.*

Materials & Methods: *56 cases of impacted mandibular third molar were divided into 2 groups of 28 each. Group I patients were given tramadol 50 mg intravenously before the surgery and group II patients were given ketorolac 30 mg intravenously before the surgery.*

Results: *The amount of local anesthetic used was 5.8 in group I and 5.2 in group II, mean operating time was 18.2 minutes in group I and 17.1 minutes in group II, mean VAS was 21.0 mm in group I and 15.4 mm in group II, total analgesic consumption was 6.5 tablets in group I and 4.2 tablets in group II and mean global assessment scores was 2.7 in group I and 3.4 in group II. The difference was significant ($P < 0.05$).*

Conclusion: *Tramadol is a suitable and safe analgesic for the relief of post-extraction pain following mandibular third molar extraction surgery as compared to Ketorolac.*

Key words: *Ketorolac, Third molar, Tramadol*

1. INTRODUCTION

The removal of impacted mandibular third molars is usually a planned surgical procedure, after which a moderate to severe pain occurs within 1 to 3 hours after the operation, requiring the use of analgesics. This type of surgical procedure is used as a pain model for the introduction of new analgesics and analgesic techniques in the postoperative period.¹

Since the impacted third molars might ultimately be extracted, any associated adverse effects would become a disconcerting, troublesome issue for both dentists and patients. The way pain is experienced is a reflection of the individual's emotional, motivational, cognitive, social, and cultural circumstances.² The pain of tooth extraction is likely to be the most severe pain that an individual experiences during his or her life.³ Many individuals rate the pain of tooth extraction as very severe or intolerable. The pain of tooth extraction varies among individuals, and each extraction of an individual may be quite different. Management of post-extraction pain relieves suffering and leads to earlier mobilization, shortened hospital stay, reduced hospital costs and increased patient satisfaction.³

Tramadol is a synthetic analogue of codeine. It is a central analgesic with a low affinity for opioid receptors. Much of its action is due to inhibition of the neuronal uptake of norepinephrine and serotonin at synapses in the descending inhibitory pain pathways.⁴ The side effect profile of tramadol appears to be more acceptable to ambulatory surgical patients compared with the traditional opioids. Oral tramadol has been found to be effective for postoperative dental pain. Ketorolac is a member of the pyrrolopyrrole group of non-steroidal anti-inflammatory drugs (NSAIDs). It possesses analgesic, anti-inflammatory, and antipyretic activity.⁵ The present study was conducted to compare tramadol versus ketorolac in pain management following third molar extraction.

2. MATERIALS & METHODS

The present study comprised of 56 cases of impacted mandibular third molar. All patients were informed regarding the study and their consent was obtained.

All information such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 28 each. Group I patients were given tramadol 50 mg intravenously before the surgery and group II patients were given ketorolac 30 mg intravenously before the surgery. The surgical removal of the impacted mandibular third molar was then completed with a standardized technique by the surgeon. The pain intensity in the form of visual analogue scales was recorded. Median time to remedication, Total analgesic consumption and global assessment scores were recorded. Results thus obtained were subjected to statistical analysis using chi-square test. P value less than 0.05 was considered significant.

3. RESULTS

Table I Distribution of patients

Groups	Group I (28)	Group II (28)
Drug	Tramadol 50 mg	Ketorolac 30 mg
M:F	16:12	15:13

Table I shows that there were 16 males and 12 females in group I and 15 males and 12 females in group II.

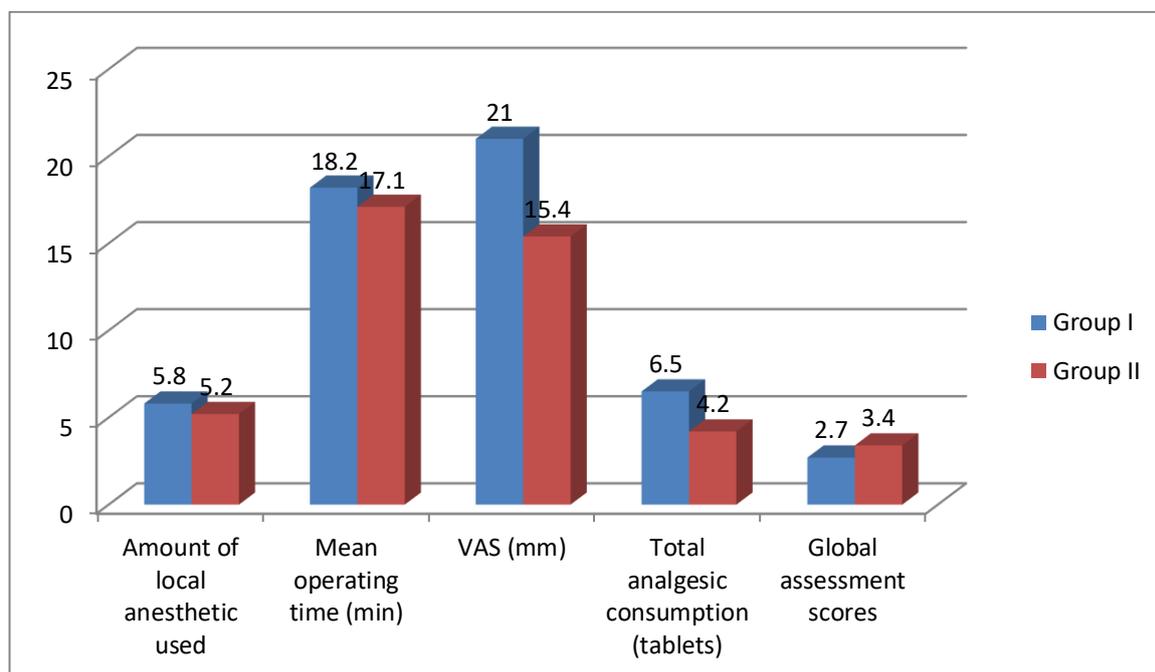
Table II Comparison of parameters

Groups	Group I	Group II	P value
Amount of local anesthetic used	5.8	5.2	0.91
Mean operating time (min)	18.2	17.1	0.82

VAS (mm)	21.0	15.4	0.02
Total analgesic consumption(tablets)	6.5	4.2	0.01
Global assessment scores	2.7	3.4	0.05

Table II, graph I shows that amount of local anesthetic used was 5.8 in group I and 5.2 in group II, mean operating time was 18.2 minutes in group I and 17.1 minutes in group II, mean VAS was 21.0 mm in group I and 15.4 mm in group II, total analgesic consumption was 6.5 tablets in group I and 4.2 tablets in group II and mean global assessment scores was 2.7 in group I and 3.4 in group II. The difference was significant ($P < 0.05$).

Graph I Comparison of parameters



4. DISCUSSION

The wisdom tooth (or third molar) is usually the last tooth to erupt into the mouth anytime after about 16 years of age.⁶ Frequently, there is not enough room in the mouth to accommodate the erupting wisdom teeth and therefore, they might not always come into the mouth normally.⁷ Wisdom teeth are usually either impacted forwards into the tooth in front or backwards into the jaw bone.⁸ An impacted wisdom tooth causes infection in the gum surrounding the tooth leading to pain and swelling.⁹ Sometimes cysts also formed due to impacted wisdom tooth. To avoid these problems it is always better to remove the tooth, however, the management of pain consequent to tooth extraction is always a major concern for the individual.¹⁰ The present study was conducted to compare tramadol versus ketorolac in pain management following third molar extraction.

In present study, group I patients were given tramadol 50 mg intravenously before the surgery and group II patients were given ketorolac 30 mg intravenously before the surgery. There were 16 males and 12 females in group I and 15 males and 12 females in group

II. Shaiket al¹¹ in their study group A received 50 mg of tramadol orally and Group B received 10 mg of ketorolac orally. In both groups dose was repeated for next 24 hrs. Visual scale analog was used for the collection of pain intensity from the patients. In Group A, the analgesia started within 1 hour and at the end of 24 hours, pain intensity was 2.12 out of 10 on visual analog scale. In Group B, analgesia started within 30 minutes and at the end of 24 hours, the pain intensity was 2.98 on visual analog scale. Sedation associated with dizziness and muscle relaxation was observed with tramadol in 5% of patients and sweating in 8% patients. While in case of ketorolac, 33% of patients suffered with side effects. Among them 33% patients suffered with bleeding at the site of tooth extraction and 20% patients suffered with epigastric pain. The analgesic effect of 50 mg tramadol lasted up to 6 hours and that of ketorolac lasted for 5 hours.

We found that amount of local anesthetic used was 5.8 in group I and 5.2 in group II, mean operating time was 18.2 minutes in group I and 17.1 minutes in group II, mean VAS was 21.0 mm in group I and 15.4 mm in group II, total analgesic consumption was 6.5 tablets in group I and 4.2 tablets in group II and mean global assessment scores was 2.7 in group I and 3.4 in group II. Ong et al¹² in their study sixty-four patients undergoing elective third molar surgery were randomly assigned into one of the two groups (32 in each group): Group I received tramadol 50 mg, and Group 2 received ketorolac 30 mg intravenously preoperatively before the surgery. After injection of the study drugs, a standard intravenous sedation technique was administered and the impacted third molars were removed under local anaesthetic. The difference in postoperative pain was assessed by four primary end-points: pain intensity as measured by a 100-mm visual analogue scale hourly for 12 hours, median time to rescue analgesic, postoperative acetaminophen consumption, and patient's global assessment. Throughout the 12-hours investigation period, patients reported significantly lower pain intensity scores in the ketorolac versus tramadol group. Patients also reported significantly longer median time to rescue analgesic, lesser postoperative acetaminophen consumption and better global assessment for the ketorolac versus tramadol group. Preoperative intravenous ketorolac 30 mg is more effective than tramadol 50 mg in the prevention of postoperative dental pain.

5. CONCLUSION

Authors found that tramadol is a suitable and safe analgesic for the relief of post-extraction pain following mandibular third molar extraction surgery.

6. REFERENCES

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