

## Original Research

### Comparative evaluation of effectiveness of dexamethasone Intramuscular Administered Pre-operatively vs. Post Operatively after the Surgical Extraction of Impacted Mandibular Third Molars

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#### ABSTRACT:

**Background:** The present study was undertaken for comparing the Therapeutic Effects of Dexamethasone Intramuscular Administered Pre-operatively vs. Post Operatively after the Surgical Extraction of Impacted Mandibular Third Molars.

**Materials & methods:** There were 100 patients in all. Every patients' complete demographic and clinical information was gathered. Each subject underwent a clinical evaluation. Only individuals who were about to have their impacted third molars extracted were enrolled. The participants were allocated randomly into two study groups as follows: Group A: Preoperative intramuscular dexamethasone administration, and Group B: Postoperative intramuscular dexamethasone administration. Oral surgeons with training and expertise performed all of the surgical operations. All patients received standard antibiotic coverage and postoperative home care instructions. On the seventh day, patients were summoned back and the sutures were taken out. There was a clinical examination. Using SPSS analysis software, data was examined. **Results:** Mean mouth opening was significantly lower among patients of group B at postoperative 1<sup>st</sup> day and at postoperative 3<sup>rd</sup> day. However; at postoperative 7<sup>th</sup> day, no significant difference was observed in terms of mouth opening in between both the study groups. Mean swelling was significantly higher among patients of group B at postoperative 1<sup>st</sup> day and at postoperative 3<sup>rd</sup> day. However; at postoperative 7<sup>th</sup> day, no significant difference was observed in terms of swelling in between both the study groups. **Conclusion:** In impacted third molar surgeries, pre-operative intramuscular dexamethasone injection results in better post-operative therapeutic effects than post-operative administration.

**Key words:** Dexamethasone, Impacted, Molar

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#### INTRODUCTION

According to its anatomic position, an impacted tooth is one that is either fully or partially unerupted and is placed against another tooth, bone, or soft tissue, making the likelihood of future eruption low. Around 73% of young adults in Europe have third molar impaction; these teeth typically erupt between the ages of 17 and 21.<sup>1-4</sup> Third molar eruption is also said to vary by race; for example, in Nigeria, it may happen as early as 14 years of age, while in Europe, it may happen as late as 26 years of age. The timing of the eruption of the third molar is also influenced by other factors, including the type of diet that may cause attrition, decreased mesiodistal crown diameter, level of masticatory apparatus use, and genetic inheritance. According to the majority of researchers, women are

more likely than men to experience mandibular third molar impaction.<sup>4-6</sup> The amount of surgical trauma, the need to remove bone tissue, and the length of the periosteum all affect how painful the postoperative period is. The effectiveness of corticosteroids in reducing postoperative pain is debatable. Particularly after surgery, corticosteroids are used to prevent the buildup of inflammatory mediators, lessen fluid transudation, and reduce edema. Dexamethasone is used for a variety of purposes in medicine.<sup>6-9</sup> Hence, the present study was undertaken for comparing the Therapeutic Effects of 8 mg Dexamethasone Intramuscular Administered Pre-operatively vs. Post Operatively after the Surgical Extraction of Impacted Mandibular Third Molars.

## MATERIALS & METHODS

The present study was undertaken for comparing the Therapeutic Effects of Dexamethasone Intramuscular Administered Pre-operatively vs. Post Operatively after the Surgical Extraction of Impacted Mandibular Third Molars. There were 100 patients in all. Every patients' complete demographic and clinical information was gathered. Each subject underwent a clinical evaluation. Only individuals who were about to have their impacted third molars extracted were enrolled. The participants were allocated randomly into two study groups as follows:

Group A: Preoperative intramuscular dexamethasone administration.

Group B: Postoperative intramuscular dexamethasone administration.

Oral surgeons with training and expertise performed all of the surgical operations. All patients received standard antibiotic coverage and postoperative home

**Table 1: Descriptive results of age (years)**

Age (years)	Group A	Group B
Mean	28.4	27.3
SD	3.3	3.1
t-statistics	-74.58	
p- value	0.7461	

**Table 2: Descriptive statistics for swelling (cm)**

Swelling	Group A	Group B	p- value
Pre-operative swelling (cm)	12.7	12.9	0.14
Post-operative 1 <sup>st</sup> day swelling (cm)	12.2	13.8	0.00*
Post-operative 3 <sup>rd</sup> day swelling (cm)	13.5	14.8	0.00*
Post-operative 7 <sup>th</sup> day swelling (cm)	12.3	12.4	0.68

\*: Significant

**Table 3: Descriptive statistics for mouth opening (cm)**

Mouth opening	Group A	Group B	p- value
Pre-operative swelling (mm)	47.3	45.1	0.65
Post-operative 1 <sup>st</sup> day swelling (mm)	34.3	30.7	0.000*
Post-operative 3 <sup>rd</sup> day swelling (mm)	42.8	36.9	0.000*
Post-operative 7 <sup>th</sup> day swelling (mm)	47.3	46.7	0.76

\*: Significant

## DISCUSSION

Third molar is the most commonly seen impacted tooth in the mouth, with a higher occurrence rate in the lower jaw than the upper jaw. To surgically extract symptom-free or pathology-free impacted third molars as a preventive manner has always been a debate between clinicians for a long time. In the past decades, evidence has shown an increased incidence of periodontal breakdown or other dental morbidities on the adjacent second molars when third molars were present or impacted; the prevalence rises as the patient ages.<sup>8-10</sup> Hence, the present study was undertaken for comparing the Therapeutic Effects of 8 mg Dexamethasone Intramuscular Administered Pre-operatively vs. Post Operatively after the Surgical Extraction of Impacted Mandibular Third Molars.

care instructions. On the seventh day, patients were summoned back and the sutures were taken out. There was a clinical examination. Using SPSS analysis software, data was examined.

## RESULTS

Mean age of the patients of group A and group B was 28.4 years and 27.3 years respectively. Mean mouth opening was significantly lower among patients of group B at postoperative 1<sup>st</sup> day and at postoperative 3<sup>rd</sup> day. However; at postoperative 7<sup>th</sup> day, no significant difference was observed in terms of mouth opening in between both the study groups. Mean swelling was significantly higher among patients of group B at postoperative 1<sup>st</sup> day and at postoperative 3<sup>rd</sup> day. However; at postoperative 7<sup>th</sup> day, no significant difference was observed in terms of swelling in between both the study groups.

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molar surgical removal. Twenty-seven participants with bilateral symmetrical lower impacted third molars were included in this study. Each participant was randomly allocated to one of two groups. Group A received injections of 1 ml dexamethasone (4 mg/mL) and 1 mL placebo into the pterygomandibular space before and after surgery, respectively. Group B received the same doses of placebo before surgery and dexamethasone after surgery. A significant restriction of mouth opening on the second postoperative day was observed in both groups. Nonetheless, the postoperative restriction of mouth opening, facial swelling, postoperative pain, and analgesic consumption after lower third molar surgical removal were not significantly different in the two groups. Regardless of the time of administration, dexamethasone injections into the pterygomandibular space resulted in satisfactory control of the postoperative sequelae of the mandibular third molar surgical removal.<sup>9</sup> Al-Shamiri, H. M et al evaluated the effect of preoperative versus postoperative administration of oral Dexamethasone on postoperative complications including pain, edema, and trismus following lower third molar surgery. 24 patients were divided into two equal groups receiving 8 mg Dexamethasone orally, one group one hour preoperatively and the other group immediately after surgery. Pain was measured using VAS, edema was measured using a graduated tape between 4 fixed points in the face, and the mouth opening was measured using a graduated sliding caliper. Pain and trismus records were similar and statistically nonsignificant in both groups. The results had proven that preoperative administration was superior when compared to postoperative administration regarding edema (0.002). Preoperative oral administration of 8 mg Dexamethasone was superior to the postoperative administration of the same dose concerning edema after lower third molar surgery.<sup>10</sup>

## CONCLUSION

In impacted third molar surgeries, pre-operative intramuscular dexamethasone injection results in better post-operative therapeutic effects than post-operative administration.

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