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**COMPARISON OF THE CLINICAL EFFICACY OF DEXAMETHASONE WITH  
IBUPROFEN AND IBUPROFEN ALONE ON THE POSTOPERATIVE SEQUELAE  
OF SURGICAL REMOVAL OF IMPACTED THIRD MOLAR**

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**ABSTRACT**

**PURPOSE**

The aim of the study was to compare the clinical efficacy of Dexamethasone with Ibuprofen to Ibuprofen alone on the postoperative sequelae of surgical removal of impacted third molars.

**MATERIALS AND METHODS:**

The present study was conducted on the 30 patients requiring surgical extraction of impacted third molars attending the Outpatient Department of Oral and Maxillofacial Surgery. The selected patients were randomly put on regimen 1 or regimen II in accordance with randomization plan. The measurements and recordings for pain and interincisal distance (mouth opening), were made on 1st, 3rd, and 7th day postoperatively on the scales designed for the purpose. The data recorded was compiled and put to statistical analysis.

**RESULTS**

It was observed from the present study that postoperative sequelae, that is, pain and trismus was significantly less in the regimen I group than regimen II group on the 1st and 3rd postoperative day.

## CONCLUSION

The results of this study substantiate the fact that a single class of drugs (nonsteroidal anti-inflammatory drug (NSAID)) is less effective in controlling postoperative inflammatory sequelae than the combination of ibuprofen (NSAID) and methylprednisolone (corticosteroid) following the third molar surgery. Therefore, this pharmaceutical combination should be considered for attenuation of postoperative sequelae in healthy patients undergoing surgical removal of impacted mandibular third molar.

**Keywords: Impacted third molars, comparative research, dexamethasone with ibuprofen, ibuprofen**

## INTRODUCTION

Surgical removal of impacted mandibular third molar is one of the most frequent procedures performed by oral surgeons, which is associated with postoperative inflammatory sequelae like pain, swelling, reduced and difficulty in mouth opening due to response to tissue injury.<sup>[1,2]</sup> Instituting active measures to minimize these postoperative sequelae is an integral part of high quality oral surgical care.<sup>[3-7]</sup>

Clinical trials have supported the hypothesis that nonsteroidal anti-inflammatory drugs (NSAIDs) and corticosteroids are effective in delaying and preventing these postoperative sequelae. The apparent interaction between the mechanisms of action of NSAIDs and corticosteroids suggests that these drugs may provide synergistic anti-inflammatory and analgesic effect in the absence of side effects.<sup>[1,3,8,9]</sup>

The aim of the present study is to compare the efficacy of co-administered dexamethasone-ibuprofen with ibuprofen alone, in the postoperative management of pain and trismus following removal of impacted mandibular third molars.

## MATERIALS AND METHODS

Using Student's t test, the present study was conducted on the 30 patients requiring surgical removal of impacted third molars attending the Outpatient Department of Oral and Maxillofacial Surgery. The age and sex of the patients participated in the present study is shown in **Figures 1 and 2**. Prior to surgery a brief history of every patient was taken to select cases as per inclusion and exclusion criteria).

Following measurements were made for the patients.

1. Pain was recorded using non-calibrated 100 mm visual analogue scale (VAS). The

end points of the scale were ‘no pain’ and ‘pain could not be worse’ [8].

2. Interincisal opening was evaluated by measuring the distance on maximal opening between the right maxillary and mandibular incisor with a calliper [8].

The selected patients were randomly put on regimen I or regimen II at either the first or second surgery in accordance with randomization plan.

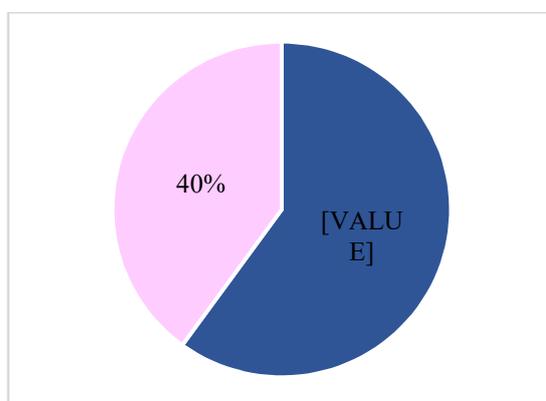


Figure 1: 60% Males & 40%

### Regimen I:

Inj. Dexamethasone 4mg intramuscular immediately before surgery, followed by oral Tab. Ibuprofen 400mg 6h postoperatively on the day of surgery and 1<sup>st</sup> and 2<sup>nd</sup> post op day.

### Regimen II:

Orally Tab. Ibuprofen 400 mg every 6 h postoperatively the day of surgery and 1<sup>st</sup> and 2<sup>nd</sup> postoperative day.

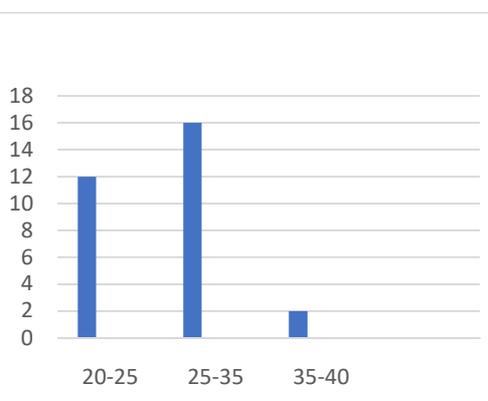


Figure 2: Age of the patient

## OBSERVATIONS AND RESULTS

The measurements and recordings for pain and interincisal distance (mouth opening), were made on 1st, 3rd, and 7th day postoperatively on the scales designed for the purpose. The data recorded was compiled and put to statistical analysis.

### Pain:

Mean Value of Pain on VAS [Table 1].

The mean difference in pain experienced by patients on regimen I and II was highly significant at 24 and 72 h, but nonsignificant on 7th postoperative day.

**Trismus:** The degree of trismus can be evaluated from maximum mouth opening (MMO) [Table 2].

Mean Value of maximum mouth opening [Table 2].

The mean difference in MMO between two groups was highly significant at 24 and 72 h, but nonsignificant on 7<sup>th</sup> postoperative day.

It was observed from the present study that postoperative sequelae, that is, pain and trismus was significantly less in the regimen I group than regimen II group on the 1st and 3rd postoperative day.

Table 1: Mean value of pain experienced by the patient on regimen I and II as recorded on visual analog scale (VAS)

Regimen	Pre op	1 <sup>st</sup> Day	3 <sup>rd</sup> Day	7 <sup>th</sup> Day
I	0.00	23.94	10.23	0.96
II	0.00	54.14	27.74	1.36

Table 2: The mean value of maximum mouth opening (MMO) in patients on regimen I and II

Regimen	Pre op	1 <sup>st</sup> Day	3 <sup>rd</sup> Day	7 <sup>th</sup> Day
I	46.24	34.25	40.28	45.085
II	46.257	28.08	35.85	44.35

## DISCUSSION

Surgical removal of third molars results in an intense inflammatory response as with any surgical procedure that is characterized by edema, erythema, pain, rise in temperature, and loss of function. Most studies advocate the use of glucocorticoids along with NSAIDs for preventing postoperative pain, swelling, and trismus (Schultze-Mosgau *et al.*, (1995) [8] Hyrkas *et al.*, (1993); [10] Buyukkurt *et al.*, (2006) [11], Velmurugan Naganathan *et al.*, (2018) [12], Kugarubani *et al* [14].

Dexa methasone, a synthetic glucocorticoid is more potent and also have shown to be of value in the reduction of postoperative sequelae. Corticosteroids for dentoalveolar surgery are available for oral, parenteral, and intramuscular use. The ideal route of administration is intravenous and intramucosal as it provides an immediate pharmacologic response and provides a more predictable response.

Postoperative edema peaks 48-72 h after surgery. As the half-life of dexamethasone is 36-54 h. Since it is a long acting steroid, there won't be Rebound swelling. Tapering

of doses is not mandatory in short-term dosing. In the present study, Dexa methasone 4mg is used preoperatively through intramucosal route.

In our study the mean pain score on VAS scale in regimen I (Dexa methasone-ibuprofen combination) was significantly less than that of regimen II (ibuprofen alone) on 1st and 3rd postoperative day. In the present study significant difference in the pain score is there even on the 3rd postoperative day. Similar findings have been presented by Carriches *et al.*, (2006) [13].

In this study the mean value of maximum mouth in regimen I was significantly more than that of regimen II on 1st and 3rd postoperative day.

Duration of surgery was evaluated and checked for their effect on the parameters taken in the study, but no statistically significant result was found which was in accordance to various other studies.

This study substantiate the fact that a single class of drugs (NSAID) is less effective in controlling postoperative inflammatory sequelae on 1<sup>st</sup> and 3<sup>rd</sup> Post operative day

than the combination of Ibuprofen (NSAID) and Dexamethasone (glucocorticoid) following the third molar surgery. But on 7<sup>th</sup> post operative day there is no significance in controlling post operative sequelae.

### CONCLUSION

Although much attention is given to post-operative medications, the age of the patient as well as the systemic complications should also be taken into account. We have to evaluate the risk benefit ratio and should proceed. The study concluded that if a good anti-inflammatory drug is given, there is no need of steroids.

**Conflict Of Interest:** Nil

**Acknowledgement:** Nil

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