ORIGINEL ARTICLE

EFFECT OF DEXAMETHASONE ON SWELLING, PAIN AND TRISMUS FOLLOWING THIRD MOLAR SURGERY

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ABSTRACT
Background: Complications like swelling, trismus, and pain are common after third molar surgery. This study was conducted to evaluate the therapeutic effect of dexamethasone on these complications.

Material & Methods: This study was conducted at Hayatabad Medical Complex, Peshawar. Hundred patients with bilateral mandibular impaction were included in this study. One side of the patient last mandibular molar either right or left, was allocated randomly as control and the other side as study group. Study group received 8 mg intramuscular dexamethasone one hour prior to surgical extraction. Patients with contraindication to the use of steroids were excluded from this study. Facial swelling and maximal interincisal distance were measured by an independent examiner at baseline (preoperatively), and at 2nd, and 5th days postoperatively. Pain was measured by counting the number of rescue analgesic tablets taken, and from the patients’ response to a visual analogue scale.

Results: The dexamethasone group showed significant reduction in swelling (p<0.001) and pain (p<0.05) compared with the control group at all intervals. Intramuscular dexamethasone resulted in significantly less trismus than controls on day 2 postoperatively (p= 0.037), but there was no significant difference among the groups at 5th day.

Conclusion: Dexamethasone 8 mg given intramuscularly is effective in minimizing swelling, pain and trismus after removal of impacted lower third molar.

KEY WORDS: Third molar tooth, Dexamethasone, Pain, Trismus.
Dexamethasone after third molar surgery

Among the 100 patients of bilaterally impacted mandibular molars, there were 60 males and 40 females. The mean age was 20 years. Total of 200 surgical extractions were done, 100 in control group and 100 in dexamethasone group. At follow-up, no patients developed wound infection or serious post-operative complications and any drug side effect.

There was a significant reduction in swelling both on 2nd (p<0.001) and 5th (p<0.001) post-operative days in dexamethasone study group as compared to controls. Trismus differed significantly between the dexamethasone group and the control on 2nd post operative day (p<0.037) but not on 5th day (p=0.07).

There was also significant reduction in pain post-operatively in dexamethasone group as compared to control group. (Table 1)

DISCUSSION

The surgical removal of third molars is often associated with severe postoperative discomfort, even when teeth are removed using a gentle surgical technique. Perioperative use of corticosteroids is a pharmacological approach often used to limit postoperative edema, trismus, and pain after removal of impacted mandibular third molars due to their suppressive action on transudation. Numerous papers have supported their systemic use in third molar surgery. Recently, Markiewicz et al. in a meta-analysis, concluded that giving corticosteroids perioperatively was of mild to moderate value in reducing post operative inflammatory signs and symptoms. Specifically, patients given corticosteroids had significantly less post operative swelling and trismus than controls, both early (after 1–3days) and late (after 4–7 days). In addition, those who took corticosteroids reported less pain postoperatively than control groups. However, the effect on postoperative morbidity, and the duration of the effect of the corticosteroids, varied mainly as result of lack of consensus about the optimal route, dose, tim-

<table>
<thead>
<tr>
<th>Variables</th>
<th>Control group</th>
<th>Dexamethasone group</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>Swelling (mm)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Day 2</td>
<td>5.5</td>
<td>1.8</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Day 5</td>
<td>1.8</td>
<td>0.3</td>
<td>&lt;0.001</td>
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<tr>
<td>Trismus (mm)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Day 2</td>
<td>20.5</td>
<td>7.0</td>
<td>0.037</td>
</tr>
<tr>
<td>Day 5</td>
<td>12.8</td>
<td>5.1</td>
<td>0.07</td>
</tr>
<tr>
<td>Pain (VAS)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Day 2</td>
<td>6.3</td>
<td>3.6</td>
<td>0.04</td>
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<tr>
<td>Day 5</td>
<td>4.1</td>
<td>0.7</td>
<td>0.005</td>
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VAS=Visual analogue scale (1-10)
ing, and duration of treatment in addition to differences in methods used to evaluate clinical variables.

The steroid elected should have few mineralocorticoid effects and good biological activity. Dexamethasone meets these requirements, as it has no mineralocorticoid activity, the half-life is roughly 36-72 hours, and the drug is 25 times more potent than hydrocortisone. It also seems to have the least depressing effect on leukocyte chemotaxis.\(^3,17\)

Few studies have objectively evaluated the effect of dexamethasone as an intramuscular injection in third molar surgery, although this route is the one most likely to be used when a steroid injection is prescribed in outpatients. Intramuscular dosing studies have suggested that this route can be effective if a single dose is given either preoperatively or postoperatively.\(^2,5,6\) The effect may be dose-dependent. Some authors suggested using dexamethasone 8–12 mg for the best results.\(^15\) In this study intramuscular dexamethasone resulted in significant reduction in swelling postoperatively. This was as highly significant on the 2nd postoperative day, when maximum facial swelling is expected,\(^15\) as after five days. The result of this study is in agreement with those of previous studies.\(^18,19,20\)

Acute postoperative pain following third molar extraction is predominantly a consequence of inflammation caused by tissue injury.\(^21\) Dexamethasone in particular appears to decrease pain after surgery.\(^22\) This study shows a significant decrease in patients’ pain perception when comparing control to dexamethasone group. This appears to be widely in agreement with the existing literature.\(^6,7,9,10\)

A statistically high significant difference between dexamethasone group and control was observed overtime for trismus in this study. Test procedure did show a reduced postoperative degree of trismus, which is in agreement with the previous studies.\(^7,9,11,15\)

CONCLUSION

Dexamethasone 8 mg given intramuscularly one hour before removal of impacted lower third molar is an effective way of minimizing postoperative swelling, trismus, and pain.

REFERENCES

Dexamethasone after third molar surgery


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