DOI: 10.21276/sajp.2016.5.9.4

Scholars Academic Journal of Pharmacy (SAJP) **ISSN 2320-4206 (Online)**
Sch. Acad. J. Pharm., 2016; 5(9): 383-385 **ISSN 2347-9531 (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublisher.com

Original Research Article

Efficacy of dexamethasone in prevention of trismus in mandibular third molar surgery

Hamid Reza Mozaffari[1], Mohammad Ramezanian[2], Masoud Sadeghi[3], Roohollah Sharifi[4*], Shabnam Sadeghilar[5]
[1]Department of Oral Medicine, School of Dentistry, Kermanshah University of Medical Sciences, Kermanshah, Iran
[2]Department of Oral and Maxillofacial Surgery, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran
[3]Medical Biology Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran
[4]Department of Endodontics, School of Dentistry, Kermanshah University of Medical Sciences, Kermanshah, Iran
[5]Student Research Committee, Kermanshah University of Medical Sciences, Kermanshah, Iran

***Corresponding author**
Roohollah Sharifi
Email: roholahsharifi@gmail.com

Abstract: Corticosteroids (dexamethasone and methylprednisolone) have been reported to control postoperative outcome when given preoperatively. The aim of study is to evaluate efficacy of dexamethasone in prevention of trismus in mandibular third molar surgery. In a randomized double-blind and clinical trial study, 54 patients referred to Department of Oral and Maxillofacial Surgery with age range of 18-26 years. In case group, 20mg oral dexamethasone 2 hours before and 2 hours after surgery was used and in control group, 20mg multivitamin tablet 2 hours before and 2 hours after surgery was used. How and maximum mouth opening were checked for every patients before surgery, 2 hours and 48 hours after surgery. The mouth opening size was statistically significant after 2 hours and 48 hours in case group compared with control group that the mouth opening size was more in case group compared with control group. The results showed that oral dexamethasone reduced trismus of third molar surgery and probably lower dose of dexamethasone has faster efficacy on incisal opening after surgery.
Keywords: Third molar surgery, dexamethasone, trismus.

INTRODUCTION

Postsurgical complications such as pain, swelling, impaired function cause transient morbidity for the patients leading to refrainment of the treatment [1]. Pain, swelling and trismus are common complications associated with third molar surgery [2]. By pharmacologically controlling the extent of the inflammatory process, the intensity or severity of postoperative outcome such as pain, swelling and trismus may be decreased [3]. Corticosteroids have been reported to control these outcomes when given preoperatively [4]. The two most widely used are dexamethasone and methylprednisolone [2]. The aim of study is to evaluate efficacy of dexamethasone in prevention of trismus in mandibular third molar surgery.

MATERIALS AND METHODS

The Ethics Committee of Kermanshah University of Medical Sciences approved the study. In this randomized double-blind and clinical trial study, 54 patients referred to Department of Oral and Maxillofacial Surgery with age range of 18-26 years. All patients were eligible for third molar surgery under local anesthesia. The patients didn't have contraindications any type of corticosteroids, any systemic disease and were no taking any drug. The patients randomize were divided to two groups (27 cases and 27 controls). All teeth were mesio-angular and their hard tissue impaction was class 2 that was evaluated with radiography. In case group, 20mg oral dexamethasone (*Darou Pakhsh Company*) 2 hours before and 2 hours after surgery was used. In control group, 20mg multivitamin tablet (*Darou Pakhsh Company*) 2 hours before and 2 hours after surgery was used [5]. None of patients before surgery didn't have pain, reddish and symptoms of periodontal in the area of surgery. How and maximum mouth opening were checked for every patients before surgery, 2 hours and 48 hours after surgery. Forty-eight hours after surgery, the patients referred to Department of Oral and Maxillofacial Surgery and by the same person that measured trismus two hours after the surgery, were re-examined. All patients were asked to open their mouth directly so that does not have the deviation of the jaw, pain or discomfort. Trismus was assessed by measuring

the distance between the mesial incisal corners of the upper and lower right incisors during maximum mouth opening as described by Ustun et al. [6] with caliper and in millimeters. The data analysis was done with SPSS software version 20 and using of t-test. P<0.05 was statistically significant.

RESULTS

Out of 54 patients, 20 patients (37%) were males and 34(63%) were females. Also, 7 patients (18.5%), 43(79.6%) and 4(7.4%) had age<20 years, 20-39 years and ≥40 years, respectively. Mandibular third molar in thirty-nine patients (72%) was right side and 15(28%) was left right. The patients were divided to two groups (27 patients in case group and 27 in control group). Both groups were matched for age and sex. Table 1 shows size of mouth opening after mandibular third molar surgery in two groups. The mouth opening size was statistically significant after 2 hours and 48 hours in case group compared with control group that the mouth opening size was more (around 2mm) in case group compared with control group (P<0.001).

Table-1: The comparison of size of mouth opening after mandibular third molar surgery

Mouth opening size	Before	After 2 hours	After 48 hours
Case group, mm	36.43±4.23	24.38±1.97	30.76±3.88
Control group, mm	35.95±3.31	22.7±1.77	28.44±3.10
P-value	>0.05	<0.001	<0.001

DISCUSSION

This study showed that using of 20mg oral dexamethasone 2 hours before and 2 hours after surgery was significantly reduced trismus after 2h and 48h mandibular third molar surgery compared with control group and incisal opening of around 2mm over the control group in this period. Baxendale *et al*. [7] reported that oral dexamethasone 8 mg resulted in a significant reduction in pain 4 h postoperatively, and eliminated the need for opioid analgesia in the postoperative period. Bamgbose *et al*. [8] tested administration of diclofenac pottasium alone and combined with Dexamethasone that concluded combination therapy was more effective in controlling pain, swelling and trismus following third molar surgery. One study [9], showed that using corticosteroids improve the postoperative experience of patients and has a significant effect on trismus and inflammation. Another study on 500 patients [10], used 4mg of intramuscular (IM) dexamethasone immediately after third molar impaction surgery and found that dexamethasone decreased swelling, trismus, and pain postoperatively. El Hag *et al*. injected 10 mg dexamethasone IM 1h before surgery and 10mg, 10–18h after surgery. Administration of dexamethasone produced a significant reduction in swelling and trismus following mandibular third molar surgery [11]. Neupert *et al*. checked efficacy of 4 mg of dexamethasone after mandibular third molar surgery in 60 patients with bilaterally symmetrical impacted third molars. Trismus reduced in dexamethasone group. Patients were recorded with a daily postsurgical increase in incisal opening of 4–6 mm over the control group during the examination period [12]. Schmelzeisen and Frölich, examined the effects of preoperative oral administration of 6 mg dexamethasone, 12h before and once 12h after osteotomy of two impacted molar teeth, on postoperative edema, limitation of jaw opening, and intensity of postoperative pain. Limitation in jaw opening and pain reduced by 17.7% and 50% respectively [13].

CONCLUSIONS

The results showed that oral dexamethasone reduced trismus of third molar surgery and probably lower dose of dexamethasone has faster efficacy on incisal opening after surgery.

REFERENCES

1. Darawade DA, Kumar S, Mehta R, Sharma AR, Reddy GS; In search of a better option: dexamethasone versus methylprednisolone in third molar impaction surgery. J Int Oral Health, 2014; 6(6):14-7.
2. Osunde OD, Adebola RA, Omeje UK; Management of inflammatory complications in third molar surgery: a review of the literature. Afr Health Sci, 2011; 11(3):530-7.
3. Mense S; Sensitization of group IV muscle receptor to bradykinin by hydroxytryptamin and prostaglandin E2. Brain Res, 1981; 225(1):95–105.
4. Skjelbred P, Lokken P; Postoperative pain and inflammatory reaction reduced by injection of a corticosteroid. Eur J Clin Pharmacol, 1982; 21(5):391–8.
5. Cheung LK, Leung YY, Chow LK, Wong MC, Chan EK, Fok YH; Incidence of neurosensory deficits and recovery after lower third molar surgery: a prospective clinical study of 4338 cases. Int J Oral Maxillofac Surg, 2010; 39(4):320-6.
6. Üstün Y, Erdoğan Ö, Esen E, Karsli ED; Comparison of the effects of 2 doses of methylprednisolone on pain, swelling, and trismus after third molar surgery. Oral Surg Oral Med Oral Pathol Oral Radiol Endod, 2003; 96(5):535–9.
7. Baxendale BR, Vater M, Lavery KM; Dexamethasone reduces pain and swelling following extraction of third molar teeth. Anaesthesia, 1993; 48(11):961-4.
8. Bamgbose BO, Akinwande JA, Adeyemo WL, Ladeinde AL, Arotiba GT, Ogunlewe MO;

Effects of co-administered dexamethasone and diclofenac potassium on pain, swelling and trismus following third molar surgery. Head & Face Medicine, 2005; 1(11):1-11.

9. Herrera-Briones FJ, Prados Sánchez E, Reyes Botella C, Vallecillo Capilla M; Update on the use of corticosteroids in third molar surgery: systematic review of the literature. Oral Surg Oral Med Oral Pathol Oral Radiol, 2013; 116(5):e342-51.
10. Messer EJ, Keller JJ; The use of intraoral dexamethasone after extraction of mandibular third molars. Oral Surg Oral Med Oral Pathol, 1975; 40(5):594-8.
11. ElHag M, Coghlan K, Christmas P, Harvey W, Harris M; The anti-inflammatory effects of dexamethasone and therapeutic ultrasound in oral surgery. Br J Oral Maxillofac Surg, 1985; 23(1):17.
12. Neupert EA, Lee JW, Philput CB, Gordon JR; Evaluation of dexamethasone for reduction of postsurgical sequelae of third molar removal. J Oral Maxillofac Surg, 1992; 50(11):1177-82.
13. Schmelzeisen R, Frölich JC. Prevention of postoperative swelling and pain by dexamethasone after operative removal of impacted third molar teeth. Eur J Clin Pharmacol, 1993; 44(3):275-7.