



CODEN [USA]: IAJPBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

<http://doi.org/10.5281/zenodo.3234077>

Available online at: <http://www.iajps.com>

Research Article

**ANALYSIS OF ROLE OF PREOPERATIVE ANTIBIOTICS IN
PREVENTION OF POSTOPERATIVE INFECTION AFTER
IMPACTED MANDIBULAR THIRD MOLAR SURGERY**

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Article Received: March 2019

Accepted: April 2019

Published: May 2019

Abstract:

Introduction: Surgical removal of mandibular third molars is one of the most frequently performed procedures in oral and maxillofacial surgery. **Aims and objectives:** The main objective of the study is to analyze the role of preoperative antibiotics in prevention of postoperative infection after impacted mandibular third molar surgery. **Material and methods:** This cross sectional study was conducted in THQ Hospital, Tandlianwala during September 2018 to November 2018. The data was collected from 80 patients who undergo mandibular third molar surgery. The data was divided into two groups according to the use of antibiotics. Group 1 of the patients used Amoxicillin 500 mg thrice daily for 5 days and Tab Metronidazole 400 mg thrice daily for 5 days after the surgical removal of mandibular third molars. But second group was considered as a control group and treated with no antibiotic. However, both the groups were prescribed anti-inflammatory drugs and analgesics. **Results:** The data was collected from 80 patients, divided into two groups. According to results there was a significance decrease in pain by using antibiotics with a p-value of <0.001 which was highly significant. No statistically significant difference was seen in interincisal distance between the groups on the 2nd, 5th, 7th and 10th postoperative days. On the 2nd postoperative day, all the patients of group I had swellings, whereas 78% of patients of group II had swellings, with a p-value <0.001 which was highly significant. **Conclusion:** It is concluded that no difference was found between patients who received postoperative antibiotics and the control group, in incidence of postoperative treatment.

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Please cite this article in press Muhammad Daniyal Shoiab et al., *Analysis Of Role Of Preoperative Antibiotics In Prevention Of Postoperative Infection After Impacted Mandibular Third Molar Surgery.*, Indo Am. J. P. Sci, 2019

INTRODUCTION:

Surgical removal of mandibular third molars is one of the most frequently performed procedures in oral and maxillofacial surgery. The wound infection rate seen after the removal of mandibular third molar is higher than that which is seen after a routine tooth extraction, although the exact incidence of infection is difficult to assess [1]. The use of antimicrobial prophylaxis in third molar surgeries is widespread, but it is controversial. While there is some evidence on the fact that these drugs can reduce the incidence of postoperative complications, there is equally convincing evidence that they do not [2].

Impacted third molars removal is one of the common surgical procedures performed by the oral surgeons. There are arguments among the oral surgeons regarding its removal, whether the tooth should be removed or not [3]. Many investigators observed that multiple problems would develop if impacted teeth were not treated once diagnosed, these include repeated incidence of pericoronitis, difficulty to clean the distal surface of 2nd molar and food impaction that leads to proximal caries in 2nd and 3rd molar, root resorption and root surface caries especially in mesio-angular impaction, in addition serious pathologic changes like cyst and tumor also can develop [4].

Removal of impacted teeth is a very common surgical procedure performed by Oral and Maxillofacial Surgeons as well as general dentists in the South African Public Health sector. Owing to the complexity of this surgical procedure, extensive skills and training are required in order to reduce the risk of complications that may arise during or after surgery. In addition, adequate knowledge regarding the diagnostic and treatment modalities is essential in order to achieve optimum results for the patients [5].

Aims and objectives

The main objective of the study is to analyze the role of preoperative antibiotics in prevention of postoperative infection after impacted mandibular third molar surgery.

MATERIAL AND METHODS:

This cross sectional study was conducted in THQ Hospital, Tandlianwala during September 2018 to

November 2018. The data was collected from 80 patients who undergo mandibular third molar surgery. The data was divided into two groups according to the use of antibiotics.

Data collection

Group 1 of the patients used Amoxicillin 500 mg thrice daily for 5 days and Tab Metronidazole 400 mg thrice daily for 5 days after the surgical removal of mandibular third molars. But second group was considered as a control group and treated with no antibiotic. However, both the groups were prescribed anti-inflammatory drugs and analgesics. Both the groups were assessed postoperatively on the 1st, 2nd, 5th, 7th and 10th days by the same observer for post-operative mouth opening, presence of a purulent discharge at the site of surgery, pain and swelling. Post-operative pain was assessed by using a four-point Visual Analogue Scale (VAS): 0 = no pain, 1 = mild pain (pain being reported only in response to questioning and without any behavioural signs), 2 = moderate pain (pain being reported in response to questioning and accompanied by signs, or pain being reported spontaneously

Statistical analysis

Student's t-test was performed to evaluate the differences in roughness between control and treated group. Two-way ANOVA was performed to study the contributions. A chi-square test was used to examine the difference in the distribution of the fracture modes (SPSS 19.0 for Windows, SPSS Inc., USA).

RESULTS:

The data was collected from 80 patients, divided into two groups. According to results there was a significance decrease in pain by using antibiotics with a p-value of <0.001 which was highly significant. No statistically significant difference was seen in interincisal distance between the groups on the 2nd, 5th, 7th and 10th postoperative days. On the 2nd postoperative day, all the patients of group I had swellings, whereas 78% of patients of group II had swellings, with a p-value <0.001 which was highly significant.

Table 01: Comparison of interincisal distance in both groups

Assessment time	Antibiotic Group	Non antibiotic Group	t* Value	p-value
	Mean +/- SD	Mean +/- SD		
Pre Op	41.8+/-4.5	42.3+/-5.3	0.52	p> 0.05
1st Day	28.7+/-4.7	33.7+/-6.5	4.42	p < 0.001 Highly significant
2nd Day	32.3+/-4.8	34.4+/-6.2	1.93	p> 0.05
5th Day	36.4+/-4.1	38.3+/-5.9	1.87	p> 0.05
7th Day	39.2+/-3.7	40.5+/-5.4	1.38	p> 0.05
10th Day	40.9+/-4.0	41.6+/-5.5	0.75	p> 0.05

DISCUSSION:

Mandibular third molar surgery is among the most frequent surgical procedures carried out by oral and maxillofacial surgeons. Infection of hard and soft tissue in a postoperative period is a common complication that can be reduced by adhering to surgical principles and adequate sterilization. Contamination of bacteria at surgical wound occurs either from the host microbial flora or environmental factors [6].

Antibiotic prophylaxis is considered mandatory before oral surgical intervention in patients with valvular heart disease and total hip joint replacement to prevent infection. Currently antibiotic prophylaxis for various surgical procedures account for over 30% of antibiotic prescriptions globally. Prophylactic application of antibiotic use in third molar surgery is controversial [7]. The most common form of antibiotic prophylaxis which is still being used is systemic administration, although the use of antiseptic mouthwashes and placement of antibiotics in extraction socket have been shown to be partially effective in prevention of postoperative infections [8]. More recently, attention has turned to utilization of drugs which are narrow spectrum and active only against causative pathogens. A specific anaerobicidal, metronidazole, has been shown to be effective in preventing complications which followed third molar surgeries.

In studies done by Sekhar *et al.*, and Kaczmarzyk *et al.*, no significant differences were seen among the groups in terms of pain, mouth opening and swelling and hence, they failed to show any advantage which was associated with routine preoperative or postoperative use of antibiotics during removal of third molars [9]. Postoperative infection, a major complication following third molar surgery was observed in patients with age range from 28-38 years. Sayd *et al* and Park *et al* were also of the opinion that chances of infection are higher with increasing age. Overall infection rate in all female patients of the study was 13.82% [10].

Oral cavity contain micro flora, and complete sterility is not possible, complicated tooth extraction especially 3rd molar is considered as contaminated, Antibiotics are often used to prevent post-operative morbidity. Objective of this study was to understand the role of antibiotic in wisdom teeth surgery. In some studies the incidence of postoperative infection after 3rd molar surgery is (< 2%) very low to justify routine antibiotic [11].

CONCLUSION:

It is concluded that no difference was found between patients who received postoperative antibiotics and the control group, in incidence of postoperative treatment. There appeared to be very little clinical gain, on the administration of postoperative oral antibiotics alone.

REFERENCES:

- Lloyd CJ, Earl PD. Metronidazole: two or three times daily—a comparative controlled clinical trial of the efficacy of two different dosing schedules of metronidazole for chemoprophylaxis following third molar surgery. *Br J Oral Maxillofac Surg.* 1994;32:165–7.
- Mitchell DA. A controlled clinical trial of prophylactic tinidazole for chemoprophylaxis in third molar surgery. *Br Dent J.* 1986;160:284–6.
- Kaziro GSN. Metronidazole and arnica montana in the prevention of post– surgical complications, a comparative, placebo controlled clinical trial. *Br J Oral Maxillofac Surg.* 1984;22:42–9.
- Kumar V, Cotran RS, Robbins SI. *Basic Pathology.* 7th ed. New Delhi, India: Elsevier Publication; 2004. pp. 33–34.
- Happonen RP, Backstrom AC, Ylipaavalniemi P. Prophylactic use of phenoxymethylpenicillin and tinidazole in mandibular third molar surgery, a comparative placebo controlled clinical trial. *Br J Oral Maxillofacial Surg.* 1990;28:12–5.
- Kaczmarzyk T, Wichlinski J, Stypulkowska J, Zaleska M, Panas M, Woron J. Single dose and multi dose clindamycin therapy fails to

demonstrate efficacy in preventing infectious and inflammatory complications in third molar surgery. *Int J Oral Maxillofac Surg.* 2007;36:417–22.

7. Peterson LJ. Antibiotic prophylaxis against wound infections in oral and maxillofacial surgery. *J Oral Maxillofac Surg.* 1990;48:617–20.
8. Rud J. Removal of impacted lower third molars with acute pericoronitis and necrotizing gingivitis. *Br J Oral Surg.* 1970;7:153–60.
9. Park J, Myoung H. Chronic suppurative osteomyelitis with proliferative periostitis related to a fully impacted third molar germ: a report of two cases. *J Korean Assoc Oral Maxillofac Surg.* 2016;42:215-20.
10. Sivalingam VP, Panneerselvam E, Raja KV, Gopi G. Does topical ozone therapy improve patient comfort after surgical removal of impacted mandibular third molar? A randomized controlled trial. *J Oral Maxillofac Surg.* 2017;75:51.e1-9.
11. Xue P, Wang J, Wu B, Ma Y, Wu F, Hou R. Efficacy of antibiotic prophylaxis on postoperative inflammatory complications in Chinese patients having impacted mandibular third molars removed: a split-mouth, double-blind, self-controlled, clinical trial. *Br J Oral Maxillofac Surg.* 2015 May;53:416-20.