Research Article

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Efficacy of 1% Chlorhexidine Gel in Reduction of Dry Socket Post Third Molar Extraction

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ABSTRACT

Background: Background:Alveolar osteitis also known as Dry socket is the most frequent and unpleasant condition that occurs after removal of permanent tooth. Chlorhexidine solution has been found to have a higher antimicrobial action other than antiseptics that are used in oral cavity for different clinical scenarios. The present study was conducted with the aim to evaluate the effect of 1% chlorhexidine gel on the incidence of dry socket.

Materials and methods: The present prospective study was conducted in the department of oral and maxillofacial surgery for a period of 1 year. Patients with acute infection or acute pericoronitis requiring antibiotics were excluded from the study. Same operating surgeon performed all the procedures and was also the one who did the follow ups. Occurrence of dry socket was checked after 48 hours, Day5 and Day7. All the data thus obtained was arranged in a tabulated form and analyzed using SPSS software. Unpaired t test was used for analysis and probability value of less than 0.05 was considered as significant.

Results: The present study enrolled 100 subjects with the mean age of 26.45+/-3.54 years. A total of 19 patients developed dry socket. On applying unpaired t test, there was a significant difference in the incidence of dry socket amongst both the group.

Conclusion: There was a significant difference in the incidence of dry socket on the study side compared to the control side indicating that chlorhexidine can be used as an adjuvant to antibiotics for reducing the pain and incidence of alveolar osteitis.

Keywords: Chlorhexidine, dry socket, antibiotics, antiseptics.

INTRODUCTION

Alveolar osteitis also known as Dry socket is the most frequent and unpleasant condition that occurs after removal of permanent tooth [1] [2]. Researches have the occurrence of dry socket varies from 1.0% - 4.0% after tooth removal, with higherfrequency in surgical removal of mandibular third molars ranging between 5.0% - 30.0% [3]-[5]. As per Birn, the pathogenesis of the alveolar osteitis is through fibrinolytic action. Higher incidence of dry socketafter third molar removal is illustrated by two main local factors,trauma and contamination by bacteria of the socket during or directly after extraction [6] [7] [8].These lead toinflammatory reaction in the alveolar bone leading to release of tissue activator, that convertsplasminogen to plasmin present in the blood clot that in turn

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releases kinins from kininogen, leading to pain. As a result a disintegrated blood clot is formed and the patient suffers from intense pain [6]. The exact technique of development of dry socket is not well established and differentresearch's to decreasethe frequency of dry socket using different intra alveolar medicaments or different systemic drugs like antibiotics after surgical tooth removal, has been done. Chlorhexidine solution has been found to have a higher antimicrobial action other than antiseptics that are used in oral cavity for different clinical scenarios. Preoperative mouth rinsescontainingchlorhexidine have been shown to decrease dry socket incidence by 45% - 80% [9]. The present study was conducted with the aim to evaluate the effect of 1% chlorhexidine gel on the incidence of dry socket.

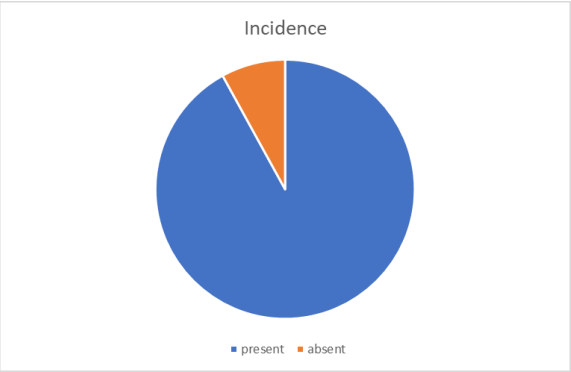
MATERIALS AND METHODS

The present prospective study was conducted in the department of oral and maxillofacial surgery for a period of 1 year. The study included 50 patients undergoing bilateral extraction of lower third molars within a period of 2 weeks. The study was approved by the institutional ethical board and all the subjects were informed about the study and a written consent was obtained from them in their vernacular language. Subjects between 18-30 years of age were enrolled in the study. Patients with systemic disease or oral contraceptives were excluded from the study. Patients with acute infection or acute pericoronitis requiring antibiotics were excluded from the study. Same operating surgeon performed all the procedures and was also the one who did the follow ups. Under complete aseptic conditions using standard surgical procedures, third molars were extracted under local anesthesia. A full thickness flap was raised and after removal thorough curettage and debridement was performed followed by suturing. 1% chlorhexidine was placed in the extracted socket in the study group before suturing. Postoperatively, ibuprofen was prescribed amongst all the patients. Occurrence of dry socket was checked after 48 hours, Day5 and Day7. All the data thus obtained was arranged in a tabulated form and analyzed using SPSS software. Unpaired t test was used for analysis and probability value of less than 0.05 was considered as significant.

Table 1: Incidence of dry socket

Incidence	Study group (n=50)	Control group (n=50)	Total
Absent	46 (92%)	35(70%)	81
present	4(8%)	15(30%)	19
P value			<0.05

Graph 1: Incidence of dry socket in study group



RESULTS

The present study enrolled 100 subjects with the mean age of 26.45+/-3.54 years. There were 30 males and 20 females in the study. In the study group, 92% (n=46) patients had no dry socket and only 8% (n=4) had developed dry socket. In the control group, 30% (n=15) patients had dry socket whereas 70% (n=35) had no dry socket. A total of 19 patients developed dry socket. On applying unpaired t test, there was a significant difference in the incidence of dry socket amongst both the group. (Table 1)

DISCUSSION

The exact technique and cause of alveolar osteitisis still not known, scientists attempt to demonstratevariousfactors that can lead to the development of dry socket, age, gender, smoke, oral contraceptives, bacterial infection and traumaduring or immediately after surgery [2] [10]. Trauma and infection are the most powerful local reasons in formationof alveolar osteitis after transalveolar removalmandibular third molar [3] [6] [11].Chlorhexidine is a bactericidal drugthat has broad antibacterial action. It's safe for use as a medicine with no deleteriouseffects and does not lead to bacterial resistance amongst human organisms are few of its advantages compared to

the systemic antibiotics. In a comparative study by NB Duvall, for bacteremia after third molar removal in first group using 2 grams ofamoxicillin and in second subgroup using chlorhexidine mouthwash 0.2% resulted in nostatistically significant difference amongst the groups. This elevation waspossibly because of its usage in antibacterial prevention as compared with the usage of systemic drugs[12]. In our study, there were 30 males and 20 females in the study. In the study group, 92% (n=46) patients had no dry socket and only 8% (n=4) had developed dry socket. In the control group, 30% (n=15) patients had dry socket whereas 70% (n=35) had no dry socket. A total of 19 patients developed dry socket. On applying unpaired t test, there was a significant difference in the incidence of dry socket amongst both the group. In a study byHaraji et al in their study that included 80 subjectswith bilaterally impacted third molar removalwith chlorhexidine gel 0.2% packed to the level of crest of the ridge with gelatinoussponge, observed significant reduction in the incidence of dry socket frequency from 32.6% to 11.3%. Besides reducing the frequency of drysocket, using chlorhexidine gel, they found reductionin postsurgical pain [13]. Chew B. in their study investigated theaction of chlorhexidine mouthwash in VAS scores after the third molar removal. Significant variationwas demonstrated in pain score and the site of inflammation [14].Torreset al. evaluated the action of chlorhexidine gel and reported that single application of 0.2% chlorhexidinebioadhesive gelpost surgical removal in the alveolusdecreased the incidence of dry socket. The incidence of dry socket was 30.76% amongst control group compared to17.64% in chlorhexidine group [15].

CONCLUSION

The use of chlorhexidine showed considerable improvement in the outcome after third molar removal. There was a significant difference in the incidence of dry socket on the study side compared to the control side indicating that chlorhexidine can be used as an adjuvant to antibiotics for reducing the pain and incidence of alveolar osteitis.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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