Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/4824r238

EFFICIENCY OF BETADINE VS CHLORHEXIDINE VS NORMAL SALINE IN EXTRACTION GROUP OF PATIENTS.

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ABSTRACT:
INTRODUCTION: An accessible tooth in your mouth is extracted gently if it needs to be removed. A general dentist frequently performs straightforward extractions. Your dentist will paralyze the area around the tooth and the gums, then use dental forceps to remove the tooth after loosening it using an elevator.
MATERIALS AND METHODS: This was a randomized, double blind parallel study on the efficacy of the CHX for the prevention of a total of 30 study participants forming the sample size of this study.
RESULTS: The patients were between the ages of 20 and 50. The mean age difference between the controls (31.4 years) and patients (36.6 years) was not statistically significant.
CONCLUSION: The present study proves that betadine is shown with good prognosis and low incidence rate of dry socket and infection compared with CHX and normal saline.

INTRODUCTION:

An accessible tooth in your mouth is extracted gently if it needs to be removed. A general dentist frequently performs straightforward extractions. Your dentist will paralyze the area around the tooth and the gums, then use dental forceps to remove the tooth after loosening it using an elevator. A much more involved process called a surgical extraction is used to remove teeth that may have broken off at the gingival margin or that have not yet entered the mouth(Richards 2017). Surgical extractions are typically performed by oral surgeons, however they can also be done by regular dentists. A surgical extraction involves the dentist cutting a tiny hole through your mouth to remove the tooth underneath(World Health Organization 2016). Chlorhexidine is a disinfectant and antiseptic. It aids in lowering the quantity of bacteria or germs on your skin or in your mouth.Chlorhexidine is a disinfectant and antiseptic. It aids in lowering the quantity of bacteria or germs on your skin or in your mouth. A dicationic biguanide, CHX has a quick onset and great safety when used by both children and adults. Numerous studies have demonstrated that CHX is effective against plaque and gingivitis in a dental clinical
setting(Toms-Carmona and lvarez-Fernndez 2012). These factors make CHX the mouthwash of choice for chemically controlling supragingival biofilm. Additionally, this material lessens the quantity of bacteria that colonizes the dorsal surface of the tongue and causes halitosis(Slipczuk et al. 2013). Since CHX has significant effects on a variety of Gram-positive and Gram-negative bacteria, it is also recommended as a

preprocedural mouthrinse to control the infection and lower the amount of germs in aerosol(Charde 2016). Therefore, other investigators have also looked into whether CHX is effective against viral strains in light of the possibility that it is also effective against lipid-enveloped bacteria. As a result, CHX may be a good option to prevent or cure viral infection of the oral cavity, albeit no compiled data about the virucidal efficacy of CHX is available. Therefore, the objective of this study was to conduct a thorough literature assessment on the virucidal effectiveness of CHX against viruses that damage the oral cavity.

Betadine, also known as povidone-iodine, is an antiseptic solution made of polyvinylpyrrolidone, water, iodide, and 1% accessible iodine. It has bactericidal properties and is effective against a variety of diseases(Kanagalingam et al. 2015). Although there is a tonne of literature on its usage as a topical antibacterial agent in surgery, it has received less attention when used as a prophylactic irrigation solution to prevent surgical site infection. It has long been recognised that iodine compounds have strong antimicrobial effects(da Silveira Teixeira et al. 2019). The most effective antibacterial forms of elemental iodine are hypoiodous acid and molecular in aqueous settings. Due to their strong chemical reactivity, these iodine compounds target bacteria by oxidizing key pathogen structures such nucleic acids, proteins, and membrane components.An iodine preparation known as povidone-iodine (PVP-I) was created especially for general usage in healthcare facilities(Kumar et al. 2011). Povidone, a polymer also known as polyvinyl pyrrolidone, and elemental iodine are combined to form the preparation. When the preparation is used as a topical antiseptic, equilibrium is reached because more PVP-bound iodine is released into the solution to replace the iodine that was used by germicidal action. (Kramer and Behrens-Baumann 2002)
The goal of this study was to determine how various mouthwashes like Betadine,CHX and normal saline administration techniques affect the frequency, persistence, and etiology of bacteraemia following a straightforward single tooth extraction. The goal for further studies will be to compare betadine with other irrigant in large sample size

MATERIALS AND METHODS:

This was a randomized, double blind parallel study on the efficacy of the CHX for the prevention of a total of 30 study participants forming the sample size of this study. The record was completed after the volunteers had been enrolled because of the amount of patients required to complete the study's objective and the technical challenges. All of the patients received written and verbal explanations of every procedure used in the research. A formal informed consent was also received.

Selection of study group:

The study group was formed of 30 patients attending to the Department of Oral and Maxillofacial Surgery of the Saveetha Dental Hospital (Tamilnadu, India) in 2022 needing from a simple and single tooth extraction. Participants formed the sample size of this study. The study subjects were categorized into three groups. Group l - extracted patient using saline, Group ll - extracted patients using CHX, Group lll - extracted patients using Betadine. The dental treatment was performed under local anesthesia by dental doctors. Patients under the age of 18, individuals receiving antibiotic treatment or regularly taking oral antiseptics within the previous three months, individuals with any form of acquired or congenital immunodeficiency, and individuals with conditions that might favor the development of infection or hemorrhagic complications were all excluded from the study.Before administering the local anesthetic, mouthwash and subgingival or supragingival irrigation were carried out.

Evaluation of oral health status:

A dentist completed an intraoral examination two days prior to the intervention, noting each patient's gender, age, and deposits of plaque, calculus, gingival bleeding, depth of the gingival sulcus/periodontal pocket, degree of tooth mobility, number of caries, and presence of submucosal abscesses. Using a scale that the authors had previously created and validated and both dental and periodontal health parameters, each patient was given an overall oral health status. For each patient, the reasons for the extraction were also noted.

Administration of local anesthesia:

Local anesthesia was administered to all patients using conventional techniques (usually regional block and/or infiltration). The anesthetic employed was lidocaine and adrenaline (1:100,000) and not more than two cartridges were used in any patient. The anesthetic technique and the tooth extraction were done by a clinician who was not aware of the study design and objectives.

Data was entered to Statistical Package for the Social Sciences (SPSS, IBM, IL, USA) and chi-square test was used for statistical analysis

RESULTS:

The patients were between the ages of 20 and 50. The mean age difference between the controls (31.4 years) and patients (36.6 years) was not statistically significant. A strong association between age and the prevalence of dry socket was revealed by the Chi-square test. Patients older than 30 had a higher prevalence of dry socket. There was a statistically significant correlation between experimental and control group with the prevalence of dry socket in the experimental group being significantly lower than the controls. Clinical indicators such as the simplified oral hygiene index and the Russel periodontal index revealed that all patients in the three groups had average oral hygiene with simple gingivitis as the mean condition. Bacteremia was observed in a few people with somewhat higher OHIS and PI values. After 7 days ,the patient's blood was tested negative for bacterial growth. 12 individuals out of a total of 30 suffered postoperative bacteremia. Out of the 12 patients, 6 cases (60%) from group I, 5 cases (30%) from group II, and 1 case (20%) from group lll had positive bacterial growth in the post-surgical blood sample.

DISCUSSION:

Although the fact that gender was not a factor in the current study's findings, it was found that elderly patients had a higher incidence of dry socket. Additionally, there was no connection between the patients' oral hygiene status and the occurrence of dry socket(Minguez-Serra, Salort-Llorca, and Silvestre-Donat 2009). When compared to the other control group, the experimental group that utilized Betadine oral rinse saw a significantly lower incidence of dry socket. Studies document the age-related patterns in dry socket incidence. However, this lack of relevance may be attributed to the small number of patients under the age of 26. The majority of studies come to the conclusion that people between the ages of 20 and 50 experience the highest frequency of dry socket(Minguez-Serra, Salort-Llorca, and Silvestre-Donat 2009). The very low incidence of dry socket in children under the age of 20 can be attributed to greater blood flow, increased flexibility, and the capacity for maxillary tissue repair. Before the age of 24, impacted mandibular third molars should be extracted because older patients are more likely to experience postoperative problems(Rodrigues et al. 2011). In line with several other studies, a substantial difference between the incidences of dry socket in different age groups was seen in our research. People over the age of 30 had a much higher incidence of this illness than those under 30. The higher occurrence of dry socket in older age groups can be explained by the slower and poorer quality of healing since the disease impairs healing(Taberner-Vallverdú, Sánchez-Garcés, and Gay-Escoda 2017).

In other research they showed that mucosal scar healing is not gender-dependent. This is consistent with the findings of the present study(Hasheminia et al. 2018). Various studies have connected poor oral hygiene to an increased risk of dry socket(Hamzeheil et al. 2015). Other researchers identified good oral hygiene as a contributing factor to the reduced prevalence of dry socket. There is no correlation between the occurrence of dry socket and oral hygiene was found in our study. More than half of the study participants' oral hygiene appears to be influenced by using povidone-iodine mouthwash just prior to surgery. Therefore, it is suggested that future research on the impact of oral hygiene on dry socket use a larger sample size(Oginni 2008). In other studies rats were given bacteria to evaluate the impact of microbes and bacterial contamination on the rise in dry socket incidence(Miron and Choukroun 2017). They stated that the surgeon must reduce bacterial contamination in order to prevent the occurrence of dry socket. In other articles, it was discovered that using various types of chlorhexidine effectively decreased the occurrence of dry mouth(Newman and Wilson 1999). In other research they used povidone iodine 1% mouthwash was identified as the reason for the reduced frequency of dry socket after a study of 277 teeth extracted from 199 patients(Biradar et al. 2019). Unlike the results that were previously reported, our research showed a strong correlation between the usage of povidone iodine 1% mouthwash and the incidence of dry socket. This mouthwash can significantly reduce the incidence of dry socket, despite the lack of impact of antibacterial iodinated treatments on the matter. The reduction in dry socket incidence following topical antimicrobial therapy is a reflection of the function played by bacteria in the formation of dry socket and suggests thatmicrobial factors may contribute to an outbreak of dry socket(Whitehead 2003).

CONCLUSION:

The present study proves that betadine is shown with good prognosis and low incidence rate of dry socket and infection compared with CHX and normal saline. This finding suggests the use of povidone-iodine prior

to surgical extraction of teeth.

ACKNOWLEDGEMENT:
This research was done under the supervision of the Department of Oral and Maxillofacial Surgery, Saveetha dental College and Hospital. We sincerely show gratitude to the corresponding guide who provided insight and expertise that greatly assisted the research.

FUNDING SOURCE:
Saveetha Dental College & Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University and Anu enterprises, Chennai, Tamilnadu.

CONFLICT OF INTEREST:
There was no potential conflict of interest.

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