

# AGE AS A RISK FACTOR IN PATIENTS WITH DRY SOCKETS : A RETROSPECTIVE STUDY

<sup>1</sup>Kethiswar Raj, <sup>2</sup>Balakrishna R N

<sup>1</sup>Saveetha Dental College, Saveetha institute of medical and technical science, Saveetha University,  
Chennai, Tamilnadu, India, 600077

<sup>2</sup>Senior lecturer, Department of Oral Maxillofacial surgery, Saveetha Dental College and Hospitals,  
Saveetha Institute of Medical & Technical Sciences, Chennai, Tamil Nadu, India -600 077

[kethis6397@gmail.com](mailto:kethis6397@gmail.com)

[balakrishnarn.sdc@saveetha.com](mailto:balakrishnarn.sdc@saveetha.com)

## ABSTRACT:

Alveolar osteitis which is also known as dry socket, is an inflammation of the alveolar bone. Usually, this occurs after a postoperative complication of tooth extraction. Alveolar osteitis can occur where the blood clot fails to form or is lost from the socket and this leaves the empty socket where bone is exposed to the oral cavity, causing a localized alveolar osteitis limited to the lamina dura. This most specific type is known as dry socket and is associated with increased pain and delayed healing time. The aim of the study is to compare the prevalence of dry socket and age as a risk factor in patients who visited Saveetha Dental College. The objective was to find the base in Saveetha Dental college by the data collected for the theoretical framework for research proposal. In materials and methods, there are certain requirements that were necessary such as case control study for a better understanding, patients details who visited saveetha dental college for a background check, data obtained from the outpatient record was to ensure that the data can be supported, followed by analytics of dry socket patients to know the total number of patients involved, the sample size obtained and the tabulation of data was done in excel sheet and finally a satisfied analysis is done with the proper data. The majority of patients that are with dry socket were around the age range from 28 years to 47 years and is more common in females than in males and majority of them are non-smokers. Even in the gender prevalence, the total number of females are more than males by numbers and it is obtained with the confirmed data. The mean age group from the age range of 28 years to 47 years is the age group 50 years and the positive statistically significant correlation between the age and dry sockets. The type of test used in this study is this chi square test and the P value of the test is <0.05 which is significant. We can observe the graph showing distributions such as age where the age group from 28 years to 47 years has a total value of (9 with 53.1%) and we also can conclude that the age group from 55 years to 74 years have a total value of 46.9%. In gender we can tell from the graph that the male group has a total value of (8 with 47.1%) and that the female group has a total value of (52.9%). From smoking we can conclude that a total of (76.5%) of the obtained patients are non-smokers and a total of (23.5%) of the obtained patients are smokers

**KEYWORDS:** Alveolar osteitis, alveolar bone, extraction, dry socket, healing time, smokers

## 1. INTRODUCTION:

Alveolar osteitis which is also known as dry socket, is an inflammation of the alveolar bone. Usually, this occurs as a postoperative complication of tooth extraction. Alveolar osteitis can occur where the blood clot fails to form or is lost from the socket. This leaves the empty socket where bone is exposed to the oral cavity, (Marimuthu *et al.*, 2018) causing a localized alveolar osteitis limited to the lamina dura. This most specific type is known as dry socket and is associated with increased pain and delayed healing

time.(Kumar, 2017b).The Dry socket occurs in about 0.5–5% of routine dental extractions, and in about 25–30% of Since alveolar osteitis is not primarily an infection, there is not usually any pyrexia (fever) and cervical lymphadenitis (swollen glands in the neck), and only minimal edema (swelling) and erythema (redness) is present in the soft tissues surrounding the socket.(Christabel *et al.*, 2016). The signs may include the empty socket, which is totally devoid of blood clot and the exposed bone may be visible or the socket may be filled with food debris which reveals the exposed bone once it is removed. The exposed bone is extremely painful and sensitive to touch surrounding inflamed soft tissues may overlie the socket and hide the dry socket from casual examination.(Jesudasan, Abdul Wahab and Muthu Sekhar, 2015)(Kumar and Rahman, 2017).

Denuded bone walls, Symptoms may include, Dull, aching, throbbing pain in the area of the socket, which is moderate to severe and may radiate to other parts of the head such as the ear, eye, temple and neck.The pain normally starts on the se This can be another cause of pain in a socket, and causes delayed healing. A dental radiograph (x-ray) may be indicated to demonstrate such a suspected fragment.(Abhinav *et al.*, 2019).Treatment is usually symptomatic, and also the removal of debris from the socket by irrigation with saline or local anesthetic.Medicated dressings are also commonly placed in the socket; although these will act as a foreign body and prolong healing, they are usually needed due to the pain(Kumar, 2017a). The dressings are usually stopped once the pain is lessened. Examples of medicated dressings include antibacterials, topical anesthetics and obtundants, or combinations of all three, e.g., zinc oxide and eugenol impregnated cotton pellets, alvogyl (eugenol, iodoform and butamen), dentalone, bismuth subnitrate and iodoform paste (BIPP) on ribbon gauze and metronidazole and lidocaine ointment(Rao and Santhosh Kumar, 2018).A 2012 review of treatments for dry socket concluded that there was not enough evidence to determine the effectiveness of any treatments. People who develop a dry socket typically seek healthcare advice several times after the dental extraction, where the old dressing is removed, the socket irrigated and a new dressing placed. Curettage of the socket increases the pain and whether it is of overall benefit is debate.(Khalifah, 2018)(Dodson, 2013)(Kumar and Sneha, 2016).Dry socket is also known as alveolar or fibrinolytic osteitis which is a complication after the extraction of tooth/teeth , dry sockets can be classified into chronic and acute inflammation.

Acute inflammation usually occurs on the alveolar bone of the extracted tooth or a few , severe pain is felt at the site of the extracted tooth, analgesics might help in most cases.After extraction , breakdown of white blood cells and formation of blood clot is formed , which makes the sockets empty extractions and will later on will be filled with food debris , after accumulation the empty sockets is filled with food debris, swelling and redness can be seen and felt on the gingiva, followed by halitosis and usually bone exposure is seen and the swelled part is usually tenderness on examination.(Dodson, 2013)

Incidence of dry socket in recent times in Nigerian tertiaryHospital - [Babatunde O *et al*, IJD (2014)].Current review, regarding risk factors ;age , surgical trauma, smoking oral contraceptives and poor oral hygiene seemed to be a major risk factor . [Mosaad Abdaljawwad khalifah , ADHDR (2018).A retrospective review of the records of the dental extractions complicated by dry socket in obafemi awolowo university teaching hospital [ogimmi *et al*, JOMS (2003)]

As aging increases (Packiri, Gurunathan and Selvarasu, 2017), the porosity of the bone increases while the toughness of the bone and fibres decreases after the age of 35 years.(Xu and Xia, 2019).The porosity of the bone increases through micro factors , these micro factor(Kumar and Sneha, 2016) allows a smooth floor for channels and the flow of the blood flow and prevents blood clot from occurring.(Patil *et al.*, 2017).The aim of the study is to compare the prevalence of dry socket and age as a risk factor in patients visiting Saveetha Dental College.The objective of the base in Saveetha Dental college by the data collected for theoretical framework for research proposal.

## 2. MATERIALS AND METHODS:

In materials and methods, there are certain requirements that are necessary such as case control study for a better understanding, patients details who visited saveetha dental college for a background check, data obtained from the outpatient record to ensure that the data can be supported, followed by analytics of dry socket patients to know the total number of patients involved, the sample size obtained and the tabulation of data is done in excel sheet and finally a satisfied analysis is done with the proper data.

The study setting of this was done in saveetha dental college with proper details taken from the DIAS software with proper readings. The pros of this study setting is that the data collected is reasonable because the data has been collected from the outpatient record and proper patients details checked from time to time, the case control study was done with proper data obtained and sufficient care to obtain and which makes it possible for a case control study. The cons of this study is that there are geographic restrictions involved and with no proper geographic restriction we are not able to obtain sufficient data and before we can proceed with the materials and methods it is important and compulsory that we get the approval from the ethical committee and the respected guides from saveetha dental college.

Under data collection, it is necessary to assess clinical examination in the data obtained from the outpatient record. A proper analysis of dry sockets is done by assessing the photographs or any radiographs taken during examination. Tabulation of proper data is important with variant column done under EXCEL. SPSS software is downloaded into the system and should be imported and the censored data management should be excluded.

Under analytics, the statistical test used for this study has been identified as the Mann-Whitney U-test. The software used for this study (and all the other studies done) is the SPSS software that needs to be downloaded and converted according to its compatibility. According to the independent variables such as age and the risk factors of the dry socket and the dependant variable such as sex. The analysis commonly used is the Mann-Whitney U-test and the steps should be followed in statistical order. The total number of people involved are 3 of them which are a guide, a reviewer and a researcher.

While sampling, we should remember that in the previous study, it was important that we find and gather reliable and published articles that are related to the areas and it gives us a better understanding and an overview on the extra references. This study has been ongoing since 21st of June 2019 to 21st of March 2020 which lasted for a year. The total number of case sheets reviewed and the number of case sheets checked is important because it gives us the opportunity to study and compare other results. The gross checking of data is important because the gross checking of a certain data like the data obtained from the outpatient record, the outpatient record data of patient photographs and additional reviewers are important to ensure correct and proper information has been obtained and used for this study. Minimizing the bias is compulsory as matched controls taken for a better understanding of the data and finally, the prevention of sampling bias can be separated into the internal validity which is present and the external validity which is absent.

## 3. RESULTS AND DISCUSSION

The majority of patients that are with dry socket are around the age range from 28 years to 47 years and is more common in females than in males and majority of them are non-smokers. Even in the gender prevalence, the total number of females are more than males by numbers and it is obtained with the confirmed data. The mean age group from the age range of 28 years to 47 years is the age group 50 years and the positive statistically significant correlation between the age and dry sockets. The type of test used in this study is this chi square test and the P value of the test is  $<0.05$  which is significant. (Kumar, Patil and Munoli, 2015). We can observe the graph showing distributions such as age where the age group from 28 years to 47 years has a total value of (53.1%) and we also can conclude that the age group from 55

years to 74 years have a total value of 46.9%. In gender we can tell from the graph that the male group has a total value of (47.1%) and that the female group has a total value of (52.9%). From smoking we can conclude that a total of (76.5%) of the obtained patients are non-smokers and a total of (23.5%) of the obtained patients are smokers. A supportive study was taken to support this study where Mosaad Abdel Jawad Khalifah, 2018 current reviewer regards to risk factors, age, surgical trauma, smoking, oral contraceptives and poor oral hygiene as a major risk factors. A previous study was also taken where a majority of studies from the fourth decade shows more females have dry socket compared to males and there is no contradiction with the study which is not in line with the study. (Patturaja and Pradeep, 2016). There should be a correlation between age, gender, smoking habit and dry sockets and the majority of them are females, patients with smoking habit are present but only in very small amount. (Vijayakumar Jain et al., 2019). Limitations are important in a study where the limited sample size should be present, geographic limitation should be limited as it comes under the unicentric study. There should be one specific ethnic group and the data may have descriptions accordingly. The future scope of this study is to show the dry socket and how it is affected if smoking is present and with a move widely carried out to study in different regions of the world and is not confined to a single geographical location with proper data.

#### **4. CONCLUSION:**

From this study we can conclude that within the limitations of present study, majority of patients with dry socket are with the age range of 28 years to 47 years and where even females and smokers are at risk.

#### **5. AUTHOR CONTRIBUTIONS :**

We the authors of the manuscript, would like to thank and acknowledge Saveetha Dental College for providing us access to use the retrospective data for the study.

#### **6. CONFLICT OF INTEREST:**

This research project is self funded and is not sponsored or aided by any third party. There is no conflict of interest.

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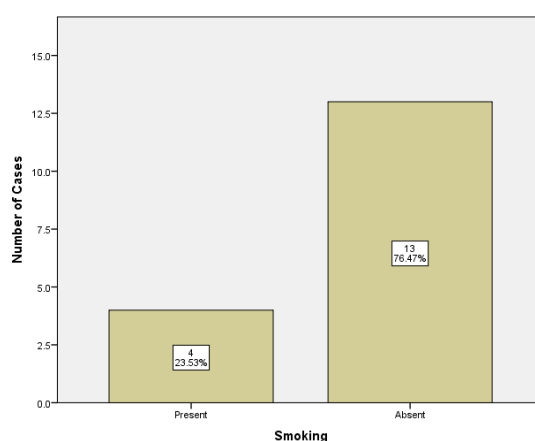


Figure 1: Bar graph showing smoking frequency among patients with dry socket complications. X-axis represents if a smoking habit is present or absent . Y-axis represents the total number of cases done . The

graph explains that the highest frequency of smoking is absent by a value of (13 with 76.47%) and in present it shows a value of (4 with 23.53%).

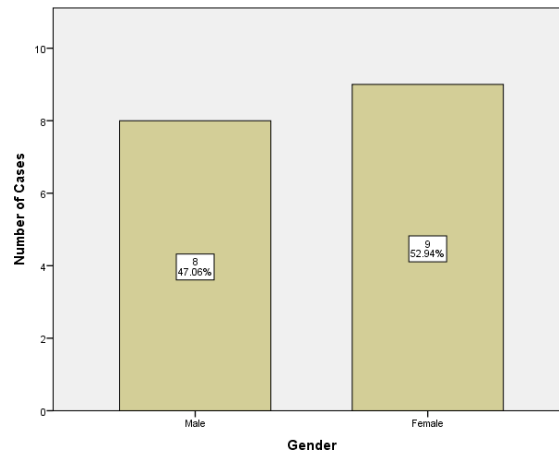


Figure 2: Bar graph showing the gender distribution among patients with dry socket complications. X-axis represents gender, the graph towards the left is male and the graph towards the right represents female.. Y-axis represents the total number of patients. The graph explains that the highest frequency is shown in females by a value of (9 with 52.94%) and in males it shows a value of ( 8 with 47.06%).

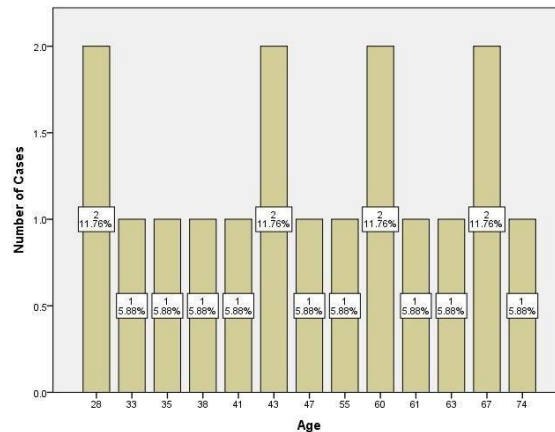


Figure 3 : bar graph showing age distribution among patients with dry socket complications. X-axis represents the age of patients. Y-axis represents the number of cases. The graph explains that the highest incidence of dry socket occurs in patients aged 28, 43, 60, and 67 years old with a value of (11.76%) respectively.

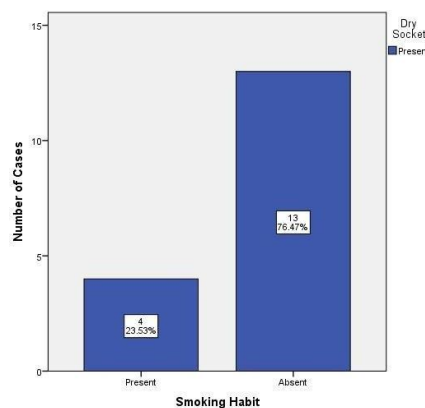


Figure 4 : Bar graph showing the association between patients with the incidence of dry socket and smoking habits. X-axis represents the presence or absence of smoking habits among the patients. Y-axis represents the number of cases with dry socket. Blue colour bar denotes the incidences of dry socket

among patients. The graph explains that patients with dry sockets have less evidence of smoking habits (4 with 23.53%) compared to those who don't have smoking habits (13 with 76.47%). Chi-square test was done and the association between patients with smoking habit and dry socket was found to be statistically significant since p value <0.05 (Chi Square; p=0.015-significant)

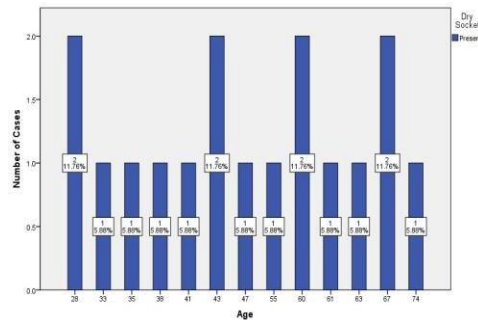


Figure 5: Bar graph showing the association between age and patients with the incidence of dry socket. X-axis represents the age among the patients. The Y-axis represents the number of cases with dry socket. Blue colour bar denotes the incidences of dry socket among patients. The graph explains that the highest incidence of dry socket occurs in patients aged 28, 43, 60, and 67 years old (11.76%, respectively). Chi-Square Test was done and the association between age and incidence of dry socket was found to be statistically significant as the p value is less than 0.05. (Pearson Chi-Square value shown as 5.885 and the p value was 0.015.) proving that there is a definitive association present between age and incidence of dry socket.

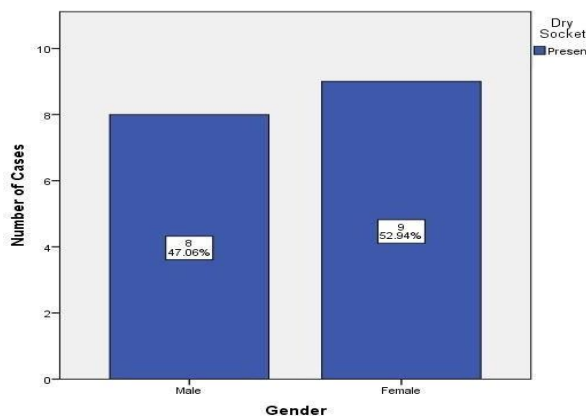


Figure6: Bar graph showing association between gender and the incidence of dry socket. The X-axis represents the genders of the patients. The Y-axis represents the number of cases with dry socket. Blue colour bar denotes the patients with dry sockets. The graph explains that female patients (9 with 52.94%) are predominant with the incidence of dry socket compared to male patients (8 with 47.06%). Chi-Square test was done and the association between the gender and dry socket was found to be statistically significant since p value <0.05. (The Chi Square Test shows p=0.015 as a significant.) Hence proving that there is a definitive association present between gender and incidence of dry socket.