EXTRACTION OF TEETH IN PATIENTS IN THE AGE GROUP OF 35-55 YEARS- A RETROSPECTIVE STUDY

M.P. Induja¹, Dr. Balakrishna R N², Dr. Surendar³

¹Saveetha Dental College & Hospitals, Saveetha Institute of Medical and Technical science (SIMATS) Saveetha University, Chennai 600077
   Mail id: 151601034.sdc@saveetha.com

²Senior lecturer, Department of Oral and maxillofacial surgery, Saveetha Dental College & Hospitals, Saveetha Institute of Medical and Technical science (SIMATS), Saveetha University, Chennai – 600077
   Mail id: balakrishnarn.sdc@saveetha.com

³Senior lecturer, Department of Conservative Dentistry and Endodontics, Saveetha Dental College & Hospitals, Saveetha Institute of Medical and Technical science (SIMATS), Saveetha University, Chennai 600077
   Mail id: surendars.sdc@saveetha.com

ABSTRACT

Introduction: Tooth loss remains to be a major oral health problem in a population all over the world. Tooth extraction is one of the dental treatments which should be considered the last option. This may result in poor dietary habits and deterioration of quality of life which is often associated with poor oral maintenance of an individual.

Aim: The aim of this study is to analyze the extraction of teeth undergone by the patients in age group 35-55 years.

Materials and methods: A Retrospective study was conducted using the records of the patients. Overall, 3547 case sheets were reviewed which were dated between June 2019 to March 2020. The data was collected by the patient records of saveetha dental college and hospitals. Data was collected in excel sheets and subjected to statistical analysis. Within the limits of this current study, extraction of teeth undergone by the patients in the age group 35-55 years was negatively correlated with age. Increased number of extractions was carried out in the age group of 35-40 years. Male patients underwent more extractions than females patients and the most commonly extracted tooth was 28 (third molar).

Keywords: Extraction; Tooth removal; Retrospective study; Tooth loss

I. INTRODUCTION:
Oral disease qualifies as a major public health problem owing to its higher prevalence and significant social impact (Rao and Santhosh Kumar, 2018). Tooth loss remains to be a major oral health problem in a population worldwide. Tooth loss can damage mastication, self-esteem and also social interactions due to its effects on appearance and the ability to have a conversation (Lee et al., 2017). The main etiology of tooth loss is dental caries and periodontal disease. Tooth extraction is the forced removal of a tooth, from the dental alveolus, or from the socket using forceps in the alveolar bone (Patturaja and Pradeep, 2016). There are different dental treatments such as scaling, prosthesis, braces, teeth whitening, root canal treatment, gum surgery bridges and implants, extractions and tooth filling in which tooth extraction is considered as the last treatment option. Extraction of teeth is one of the most common surgical procedures performed by dental surgeons (Kumar and Sneha, 2016). A decrease in the number of teeth may result in poor dietary habits and deterioration of quality of life. There are several reasons for extraction teeth, which includes dental caries, periodontal disease, failed dental treatment, prosthetic indications, impacted teeth and orthodontic reasons (Packiri, Gurunathan and Selvarasu, 2017)
Extraction of single or multiple teeth has significant effect on masticatory efficiency, esthetics, speech as well as occlusal harmony and periodontal health of the individuals (Jafarian and Etebarian, 2013). Caries and periodontal disease are progressive processes, and guide to tooth loss if not treated properly in which Tooth loss will cause functional damage (Kumar and Rahman, 2017). Periodontal diseases has a strong bonding with different systemic diseases such as diabetes, cardiac diseases, adverse pregnancy outcomes, HIV, chronic lung diseases (Patilet et al., 2017a). Advanced periodontal disease represented by pocketing were the dominant pathology when tooth loss occurred as the result of periodontal disease and the most commonly extracted teeth were molars followed by premolars, regardless of whether their loss was the result of the caries or the periodontal disease (Abhinav et al., 2019) (Christabel et al., 2016).

Surgical removal of impacted third molars is one of the most common procedures that is been carried out in oral maxillofacial surgery. Data from various studies have shown that tooth loss is more prevalent among lower socioeconomic status, poor oral health, tobacco smoking and high alcoholic utilization are thought to be the hazard factors for teeth extraction (Taani and Quteish, 2003; Jesudasan, Abdul Wahab and Muthu Sekhar, 2015). Previous studies have strongly shown that dental caries and periodontal disease as the major causes of tooth loss in several countries (Taani and Quteish, 2003). In those studies dental caries appeared to be the main cause of tooth loss in a large number of countries, and the number of extracted teeth showed an increase with age (Al-Safadi et al., 2019). Only four studies have shown that the main reason for tooth extraction, regardless of age, is periodontal disease (Montandon, Zuza and de Toledo, 2012) (Kumar, 2017b). Preoperative dental anxiety is a major predictor of pain experienced by patients during dental extractions. Hence, it is important to reduce anxiety before treatment to reduce pain during the treatment. (Kumar, 2017a)

The most common medical emergency faced by a dentist is the syncope after the administration of local anaesthesia during tooth extraction and endodontic treatment (Baskaret et al., 2017). A few investigations about partial edentulism have revealed caries as the primary causative for tooth missing (S et al., 2017), (Marimuthuet al., 2018). Previously our team has a rich experience in working on various research projects across multiple disciplines ((Neelakantan et al., 2015; Ramamoorthi, Niveditha and Divyandan, 2015; Abdul Wahabet et al., 2017; Eapen, Baig and Avinash, 2017; Manivannan et al., 2017; Patilet et al., 2017b; Ezhilarasu, Sokal and Najimi, 2018; Jeewanandan and Govindaraju, 2018; Ravindiran and Praveen Kumar, 2018; Wahabet et al., 2018; MalliSureshabuet al., 2019; Mehta et al., 2019; Rajeshkumaret al., 2019; Samuel, Acharya and Rao, 2020; Sathish and Karthick, 2020). As indicated by Zaigham and Muneer and Abdel-Rahman et al., dental caries and periodontal disease were the real reason for tooth loss in early childhood and adolescence. Additional studies observed that age correlates positively with partial edentulism (S et al., 2017). The aim of this study is to analyze the extraction of teeth undergone by the patients in the age group 35-55 years.

II. MATERIALS AND METHODS:

**Study design and setting:**

This study setting is mainly a type of university based and a single centered study. This retrospective study examined the records of patients from June 2019 to March 2020 undergoing treatment at Saveetha Dental College and Hospitals, Chennai. The study population included patients who underwent extraction under 35 to 55 years of age. The main advantage of this type of study is flexible data can be obtained whereas the drawback of this study is that they have geographical limitations and involve the people of the isolated population.

**Data collection:**

A total of 86000 patient records were analysed and the relevant data collected from 3547 patients were assessed. Age, gender, teeth number were recorded. Repeated patient records, incomplete data without proper notes were excluded from the data. The data were recorded, tabulated and the percentage calculated.

**Statistical analysis:**

Data was recorded in Microsoft Excel and later exported to IBM SPSS (version 20.0 Chicago USA) and subjected to Statistical analysis. Chi-square test was then employed with a level of significance set at P<0.05. The statistical analysis between age, gender, teeth number was carried out in SPSS software and analysed using Chi-square test. The outcome was represented in the form bar charts. (Kumar, Patil and Munoli, 2015; S et al., 2017). Ethical clearance was obtained. Ethical approval number SDC/SIHEC/2020/DIASDATA/0619-0320.
III. RESULTS & DISCUSSION:

Patients of age group 35-55 years were collected in this study. The total sample size collected in this study was 3547. Out of 3547 patients, male patients were 50.4% (n=1788) and female patients were 49.5% (n=1759) as shown in (graph 1). Male patients had undergone more extractions than female patients. The age groups of the patients were divided into 35-40yrs, 41-45yrs, 46-50yrs, 51-55yrs. The age group associated with most number of extractions were seen in 35-40years-30.4% (n=1074), 41-45years-24% (n=853), 46-50 years-24% (n=882) and 51-55years-20% (n=733) as shown in (graph 2). The most common tooth to be extracted under 35 to 55 years among males and females was 28 (left maxillary first molar) followed by 18 (right maxillary first molar) as shown in (graph 3). Male patients had undergone more extractions both in the upper and lower arch than females, however it is not statistically significant as shown in graph 4. Chi-square test, Pearson Chi square value: 0.174, df: 1, p value: 0.677 (p>0.05 which is not statistically significant). More number of extractions had undergone in the age group of 35-40 years both in the upper and lower arch than other age groups, however it is not statistically significant. Pearson Chi square value:4.416, df: 3, p value:0.22 (p>0.05 which is not statistically significant) as shown in graph 5.

The study was aimed at finding out the incidence of extractions in patients visiting Saveetha Dental college and Hospitals. Preservation of natural tooth is considered to be one of the main aim of oral health care, but due to poor oral maintenance and poor socioeconomic status, the knowledge and understanding the incidence of tooth extraction is very valuable for planning preventive oral health care. Since all data available was included without sorting process, no bias was expected in selection of patients in 35 to 55 years who underwent extractions.

According to Ankur Shah et al, reported that dental caries was predominant reason (24.1%) for tooth loss in age group of 35-44 years whereas periodontal disease was the most common reason (35.3%) in 45-54years age group (Chrysanthakopoulos, 2011). First molars were the most commonly extracted teeth (19.4%) followed by third molars (16%). As the age increases, periodontal disease becomes more important reason for tooth loss. In a study conducted by Davis et al, reported that the most of the edentulous people in this study felt they had difficulties in accepting their loss of the teeth (Davis et al., 2000). A study by Byahatti and Ingafou also reported similar results (Byahatti and Ingafou, 2011a).

In a study conducted by Anand et al, reported that 5.5% of teeth were extracted for prosthetic reasons. This is within the range of 1%-21.5% reported by several studies in India as well as outside India (24). As the age increased, more number of teeth were extracted for prosthetic reasons and more than 52% teeth were extracted in the 55-64 years age group. (Anand, 2009)

In another study conducted by Ong G et al, reported that the percentage of teeth extracted due to periodontal reasons and caries were about the same in the population of Singapore, that is 35.8% and 35.4%, respectively. There was an increase in teeth extracted due to periodontal reasons with age. In patients above 40 yr, an average of 76% of teeth were lost due to periodontal reasons. An average of 26.7% of teeth were lost due to periodontal reasons in patients under 40 yr old (Ong, Yeo and Bhole, 1996). However, the trend for loss of teeth due to caries is reversed. A study by Glass RL et al also reported similar results (Glass, Alman and Chauncey, 1987; Byahatti and Ingafou, 2011b). According to H Murray et al, analysis by tooth type showed that third molars were the most common tooth type extracted which is similar to the current study and reported that posterior teeth were most frequently lost by the younger age groups and anterior teeth by older subjects (Murray et al., 1997).

According to Caldas et al, the major cause of extraction of premolars were for the need of orthodontic treatment. Premolars are usually the choice of tooth to be extracted because of their position and compactable size. Presence of caries was observed to be the main reason for extraction (50.2%) followed by orthodontic problems (18.2%), eruption problems (17.5%), and periodontal problems (8.2%). The most frequently extracted posterior teeth were the third mandibular molar (19.4%), the third maxillary molar (16.4%), the first maxillary premolar (13.2%), and the first mandibular molar (10.9%). Although periodontal disease has been shown to be the second major reason for tooth extraction in many studies (Caldas, Marcenes and Sheiham, 2000).

In a study conducted by MuhamedHaseeb et al, reported that dental caries was the leading cause of tooth extraction 63.1%, followed by periodontitis in 26.2%; restoration failure 4.6%; trauma 3.2% and local pathologies in 2.9%. A higher proportion of patients (32.5%) having periapical involvement presented with loss of one or two walls of tooth crown. However, all cases of retained roots had periapical involvement (Khalil and
Aleisa, 2013). Allen, in a study reported similar findings in their statistical study for the primary cause of extraction and blamed dental Caries & Periodontitis to be the two main reasons for loss of teeth.(Allen, 1944)

In a study conducted by Daameh, reported that incisors are extracted more because of Periodontitis in the elderly age group and mandibular premolars were extracted more for mainly orthodontic correction and also mentioned that Canines were the least extracted because of their anatomic features and periodontal attachment(Da’ameh and Da’ameh, 2006). In a study conducted(Chava, Nuvvula and Nuvvula, 2015) by Chava V et al, reported that dental caries was seen more in 20-30years age groups. Our institution is passionate about high quality evidence based research and has excelled in various fields (Pc, Marimuthu and Devadoss, 2018; Ramesh et al., 2018; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Ramadurai et al., 2019; Sridharanet al., 2019; VijayashreePriyadarsini, 2019; Mathew et al., 2020). We hope this study adds to this rich legacy.

Many studies have been done in the past to find out various reasons for extraction of teeth. Most of the studies claim different findings and results. Although, caries remains the main cause for extraction of teeth.

**Graph 1:** Bar Graph represents the frequency distribution of gender of the study participants. X- axis represents the gender and Y- axis represents the number of patients. Among the study participants, 49.59% are females and 50.41% are males.
Graph 2: Graph showing the distribution of age group of the study participants. X-axis represents the age groups of patients and Y-axis represents the number of patients. 30.42% of the participants are in the age group of 35-40 years, 24.05% of the participants are in the age group of 41-45 years, 24.87% of the participants are in the age group of 46-50 years and 20.67% of the participants are in the age group of 51-55 years.

Graph 3: Bar Graph showing the distribution of teeth extracted, X-axis denotes the tooth number and Y-axis denotes the number of teeth extracted. 8.63% of the teeth extracted were of left maxillary third molar which is the highest followed by right maxillary third molar (7.15%).
Graph 4: Bar graph represents the association between the gender of the patients and location of teeth extracted. X-axis represents the location whether the extracted teeth belongs to upper arch or lower arch and Y-axis represents the number of patients, where yellow colour denotes male and blue colour denotes female. Male patients had undergone more extractions both in the upper and lower arch than females, however it is not statistically significant. Chi-square test, Pearson Chi square value: 0.174, df:1, p value: 0.677 (p>0.05 which is not statistically significant).

Graph 5: Bar graph represents the association between the age group of the patients and location of teeth extracted. X-axis represents the location whether the extracted teeth belongs to upper arch or lower arch and Y-axis represents the number of patients who underwent extractions, where pink, violet, green and grey colour denotes the age group of 35-40 years, 41-45 years, 46-50 years, 51-55 years respectively. More number of extractions had undergone in the age group of 35-40yrs both in the upper and lower arch than other age groups, however it is not statistically significant. Pearson Chi square value: 4.416, DF:3, p value: 0.22 (>0.05 which is not statistically significant).
Within the limits of this current study, extraction of teeth undergone by the patients in the age group 35-55 years was negatively correlated with age. Increased number of extractions was carried out in the age group of 35-40 years and the cases were more in males when compared to females. The most common tooth to be extracted was the third molar. As we know that tooth extraction is a major problem in patients, it is very valuable for planning preventive oral health care. Furthermore study is required to analyse the incidence of extractions of teeth in the age of 35-55 years.

REFERENCES: