CAUSES OF TOOTH EXTRACTION AMONGST DIABETIC PATIENTS SEEN IN A DENTAL HOSPITAL IN PESHAWAR

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ABSTRACT

The aim of the study was to evaluate the causes of common conditions leading to tooth extraction, male/female ratio in diabetic patients.

This was a retrospective cohort study. Data were collected from previous records between January 2011 to July 2015 from the Department of Oral and Maxillofacial Surgery, Sardar Begum Dental College, Peshawar. Among 2,103 total diabetic patients presented to the department, 1,618 diabetic patients have their complete record for tooth extractions. The primary reasons for exodontia specified in the records were Caries, Periodontitis, others. Others include those patients who have extractions either due to preprosthetic purpose, trauma or fracture or any other reason other than caries and periodontitis. The data was analysed through SPSS 22.

The mean age presentation was 47.50 ± 19.82 years and the age range 25-70 years. There were 1,618 extractions carried out in 2,103 subjects (76.94%). The female diabetic patients predominate n=983 (60.75%) the male patients n=635 (39.25%). Caries was the dominant cause of tooth extraction in both subjects n= 1042 (64.40%) followed by periodontitis n= 416 (25.71%) and others n=160 (9.90%).

Caries is the dominant cause of extraction in diabetic patients and female diabetic patients predominate male diabetic patients in terms of tooth extraction.

Key Words: Diabetes mellitus, Caries, Periodontitis.

INTRODUCTION

Diabetes mellitus (DM) is a group of metabolic disorders associated with a quantitative reduction in insulin production or a qualitative reduction in the action of insulin leading to changes in carbohydrate, protein, and lipid metabolism and accumulation of glucose in the bloodstream. Increased glucose in the bloodstream results in hyperglycemia which affects a variety of tissues and organ systems including eyes, nerves, kidneys, and blood vessels. The periodontal tissues are also affected as a result of hyperglycemia, and has been described as the sixth complication of diabetes mellitus. There is no strong evidence about the association of diabetes mellitus and infections however some specific infections are more common and some are associated with increased risk of complications in diabetic patients. Several aspects of immunity are altered in diabetic patients; polymorphonuclear leukocyte function is depressed particularly when acidosis is also present, their adherence, chemotaxis and phagocytosis is affected. Antioxidant systems involved in bactericidal activity may also be impaired.

Various inflammatory diseases and soft tissues pathologies in oral cavity are associated with diabetes mellitus with periodontitis as the most common ail-
ment followed by salivary dysfunction, oral infections, oral mucosal diseases, neuro-sensory oral disorders, dental caries and delayed wound healing. The plaque biofilm results in gingivitis which extends to irreversible periodontitis and ultimately tooth loss. The cleansing and buffering capacity of the saliva is diminished in patients with diabetes mellitus resulting in increased susceptibility of caries and tooth loss.

Currently diabetes mellitus affects 387 million people worldwide with type 2 diabetes making up about 90% of the cases, with 80% of burden in low and middle income countries and 8.3% adult population is involved with equal rates in men and women. From 2012 to 2014, diabetes is estimated to have resulted in 1.5 to 4.9 million deaths each year. Pakistan belongs to a high prevalence area, currently having 6.9 million affected, with projected estimates expected to double by 2025 and affect 11.5 million people. It has been estimated that the risk for dental extraction increases in diabetic patients as compared to non-diabetic patients due to increase in dental caries to about 3-fold in diabetic patients.

The aim of the study was to evaluate the frequency of common conditions leading to tooth extraction, male/female ratio in diabetic patients.

METHODOLOGY

This was a retrospective cohort study. Data was collected from previous records between January 2011 to July 2015 from the Department of Oral and Maxillofacial Surgery, Sardar Begum Dental College, Peshawar. Among 2,103 total diabetic patients presented to the department, 1,618 diabetic patients have their complete record for tooth extractions. The primary reasons for exodontia specified in the records were Caries, Periodontitis, others. Others include those patients who have extractions either due to preprosthetic purpose, trauma or fracture or any other reason other than caries and periodontitis. The data was analysed through SPSS 22.

RESULTS

The mean age presentation was 47.50 ± 19.82 years and the age range 25-70 years. There were 1,618 extractions carried out in 2,103 subjects (76.94%). The female diabetic patients predominate n=983 (60.75%) the male patients n=635 (39.25%). Caries was the dominant cause of tooth extraction in both subjects n= 1042 (64.40%) followed by periodontitis n= 416 (25.71%) and others n=160 (9.90%). Among male diabetic patients, n=418(65.83%) individuals carried out their tooth extractions due to caries, n=157 (24.72%) periodontitis and n=60 (9.45%) others. Among female diabetic patients, periodontitis as a cause of tooth extraction is a little prominent than male diabetic patients with n= 259 (26.35%). The ratio of caries as cause of tooth extraction in male to female is 1.04 while that of periodontitis is 0.94. Fig 1 shows the total causes of tooth extraction in diabetic patients in percentage and Table 1 shows causes of extraction in male and female diabetic patients and male/female ratio.

DISCUSSION

The study was conducted in a dental hospital in Peshawar. Current study revealed higher frequency of tooth extraction for female than male, which contradict the western population and the study done by Haseeb M et al. Caries was the predominant condition in both female and male diabetes mellitus leading to tooth extraction (64.40%) in the present study as in the previous study which is 63.1% in the total population. It means the frequency of cause of tooth extraction as caries in both diabetic (64.40%) and non-diabetic (63.1%) patients are nearly the same. Periodontitis was found

Fig 1: Causes of extraction in diabetic patients from January 2011-July 2015

TABLE 1: TOOTH EXTRACTIONS ACCORDING TO VARIOUS CAUSES IN MALE AND FEMALE DIABETIC PATIENTS

<table>
<thead>
<tr>
<th>Causes</th>
<th>Tooth Extractions in male diabetic patients, n (%)</th>
<th>Tooth Extractions in female diabetic patients, n (%)</th>
<th>Male/female ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caries</td>
<td>418 (65.83)</td>
<td>624 (63.48)</td>
<td>1.04</td>
</tr>
<tr>
<td>Periodontitis</td>
<td>157 (24.72)</td>
<td>259 (26.35)</td>
<td>0.94</td>
</tr>
<tr>
<td>Others</td>
<td>60 (9.45)</td>
<td>100 (10.17)</td>
<td>0.93</td>
</tr>
<tr>
<td>Total</td>
<td>635 (100)</td>
<td>983 (100)</td>
<td>0.65</td>
</tr>
</tbody>
</table>
to be the second common cause of tooth extractions in diabetic patients with considerable percentage of 25.71% which support the previous study on general population which is 26.2%.27

The results obtained from the present study suggest that Dental / Health Care Professionals should reform the preventive aspects of dentistry by engaging media, local organizations to carry out the awareness in diabetic patients as well in general population regarding oral health care. The results of this study can be generalized to the diabetic patients in the community. Results revealed high risk dental disease leading to tooth extraction in diabetic patients thus promoting health education regarding diabetes mellitus and oral hygiene and periodic dental checkups should be the strategies in order to demote the frequency of the effect of diabetes mellitus on oral health status.

CONCLUSION

Caries is the dominant cause of extraction in diabetic patients and female diabetic patients predominate male diabetic patients in terms of tooth extraction.

REFERENCE


CONTRIBUTION BY AUTHORS

1 Jawad Ahmad Kundi: Principal author/data reviewer/discussion.
2 Muhammad Shahid Khan Khattak: Abstract/co-author.
4 Muhammad Ilyas: Data collection/results/conclusion/editing.
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