ORIGINAL ARTICLE

PREVALENCE OF DENTAL CARIES AND PERIODONTAL DISEASE AMONG ELDERLY PATIENTS ATTENDING PRIVATE DENTAL COLLEGE KARACHI: A HOSPITAL BASED CROSS SECTIONAL STUDY

[1]MEHWISH RAFIQ, [2]REHMA HASAN, [3]MAHWISH BANO

ABSTRACT

The dental caries and periodontitis are among the most frequent dental ailments which have encumbered the citizens of Pakistan. Dental caries is still the foremost health problem in most evolved countries and Periodontitis is the most familiar chronic disease that affects the population regardless of age. Poor oral hygiene is the key risk factor of periodontitis.

The Periodontitis can be linked with other systemic diseases for e.g. : Diabetes Mellitus, HIV Infection, adverse pregnancy outcomes, Cardiovascular Disease, certain types of leukemia, neutropenia and genetic disorder.

The objective of this study was to determine the prevalence of dental caries and periodontal diseases in people of Gadap Town Karachi.

A cross sectional study comprising of 377 patients from Gadap Town was carried out in Out Patient Department of Private Dental Hospital Karachi from October 2017 – March 2018. Both male and female patients suffering from dental caries and periodontal diseases of age group 20 – 80 years were included in the study. The clinical assessment of caries and periodontal diseases was carried out by using WHO proforma. Data were analyzed by using IBM SPSS 20 version software. Mean and standard deviation was computed for numerical variable. The frequency and percentage was computed for categorical variable.

Dental caries were present in 95% of patients and periodontal diseases were reported in 82.8% of patients and plaque content prevailed in 86.7% of patients.

Current health situation is of major dental health significance & needs urgent attention.

Key Words: *Dental caries, periodontal disease, DMFT, plaque index*

INTRODUCTION

Health is defined as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity".[1] An individual's oral health has greatest impact on his/her health and is usually disregarded.[2] Dental caries and periodontitis are among the most frequent dental ailments which have encumbered the citizens of Pakistan.[3]

The most ubiquitous chronic ailment distressing people regardless of age, gender, race and socioeconomic status is dental caries.4 Dental caries is still the foremost health problem in most evolved countries as the disease effects 60-90% of school aged children and preponderance of adults.[5]

Periodontitis is an inflammatory disease distressing the periodontium that holds the teeth and is root cause of tooth loss in adult individuals.[6]

It's the most familiar chronic disease that affects the population regardless of age. However older individuals have marked clinical manifestations principally due to their expanded exposure to risk factors.[7] The severity of periodontitis can be classified as mild, moderate or severe based on multiple measurements of periodontal pocket depth, attachment loss and gingival inflammation around teeth.[8] Male predominance as well as deterioration with age has been observed from large epidemiological studies.[9,10] Poor oral hygiene is the key risk factor of periodontitis.[10] Periodontitis can be linked with other systemic diseases for e.g. : Diabetes

[1] Mehwish Rafiq, BDS, Baqai Dental College. House R-1615, Block-3 F.B Area Karachi E-mail: mehwishrafiq98@gmail.com
[2] Rehma Hasan, BDS, E-mail: dr.rehmanhasan@gmail.com
[3] Mahwish Bano, BDS, MPH, Assistant Professor, Department of Community Dentistry. Baqai Dental Medical University, Karachi, Pakistan. E-mail: drmahwishsyed@yahoo.com
Received for Publication: Oct 26, 2018
First Revised: Dec 2, 2018
Approved: Dec 3, 2018

Mellitus, HIV Infection, adverse pregnancy outcomes, Cardiovascular Disease, certain types of leukemia, neutropenia and genetic disorder.[10,11]

The objective of the present study was to assess the overall prevalence of dental caries and periodontal diseases in population of Gadap town, attending a private dental college in Karachi.

METHODOLOGY

A cross sectional study with a sample size of 377 patients was conducted from October 2017– March 2018 to assess the prevalence of dental caries and periodontal diseases in people of Gadap town. WHO proformas for clinical assessment of caries and periodontal diseases was used in this survey to record the data.Verbal consent was taken from the study members before the start of the study.

This study included both male and female individuals of age 20-80 years. Young children with deciduous dentition/mixed dentition, people having less than 20 years and more than 80 years of age were excluded**.**

Clinical assessment of dental caries was done by employing the decayed missed filled teeth (DMFT) index. SPSS 20 version software was used for data analysis. Mean and standard deviation was computed for numerical variable. Frequency and percentage was computed for categorical variable.

CPITN index and probe was used to assess periodontal diseases. The Plaque Index System by Silness and Löe, P1I, uses the same teeth and "scoring units" as the gingival index (GI) by Löe and Silness; that is, the distal-facial, facial, mesial-facial, and lingual surfaces of each tooth.

The Gingival Index (Löe and Silness, 1963) was used for the assessment of the gingival condition and records qualitative changes in the gingiva. It scores the marginal and interproximal tissues separately on the basis of 0 to 3.

Assessment of bleeding was performed by gentle probing along the wall of soft tissue of the gingival sulcus. Individual's GI can be achieved by the addition of each tooth values and divided by 4 to give GI for tooth.

RESULTS

A total of 377 patients aged between 20 – 80 years participated in the study. In this study 67.1% of subjects were male and 32.9% were female. Dental caries were examined by employing DMFT index, 95% people had decayed teeth, 64.7% had missed teeth and 22% had filled teeth and the DMFT was 12.21. Periodontal probing showed 17.2% healthy individuals, 15.1% had bleeding, 42.4% had calculus, 19.4% had pocket depth of 4-5mm and 4.2 % had pocket depth of 6mm or more. The data were not recorded in 1.1% patients becauseof unavailability of the sextants. Plaque was absent in 13.3% of individuals, 18.8% had mild accumulation, 60.5% had moderate accumulation whereas 7.4% had abundance of plaque. Gingiva of 17.2% individuals was healthy, 33.7% had mild gingival inflammation, 47.7% had moderate gingival inflammation and 1.3% had severe gingival inflammation.

DISCUSSION

The current prevalence of dental caries as per our survey was 98.1% and DMFT was 12.21. A cross - sectional study conducted at a hospital reported 78.2% as overall prevalence of dental caries[12], in Bahirdar city it was 21.8%[13], a Lithuanian study reported 78.3% and DMFT was 2.93[14]. Caries prevalence and DMFT was 89.2% & 13.24 respectively in a study in Al-Ahsa in the year 2005.[15] Al-Shehri, in 2012 revealed in his study higher DMFT estimate of 18.6 in elderly residing in residential homes in Riyadh of mean age 72 years.[16]

The Community Periodontal Index (CPI) was used to report the occurrence of periodontal disease. In a study in Hungary, Gingival bleeding (CPI1) was observed in 8% of the population, gingival bleeding and calculus were present (CPI2) in 49% of the individuals examined, in 23% of the participants shallow periodontal pockets (4–5 mm) were recorded (CPI3) in at least one sextant.

TABLE 1:

Condition	Mean	Standard deviation	Frequency	Percentage
Decayed	8.20	5.240	358	95%
Missed	3.73	5.726	244	64.7%
Filled	0.45	0.967	173	22%
Dmft	12.21	7.330	370	98.1%
Periodontal diseases	1.85	1.331	312	82.8%
Gingival diseases	1.33	0.771	312	82.8%
Plaque content	1.63	0.809	327	86.7%

A deep pocket (CPI4) existed in at least one sextant in 7% of the subjects.[17] Per a study in Germany the percentage of sites with BOP was 12.4% overall.[18] In the present study BOP was 15.1% and calculus was 42.4%.

A study held at private institute reported periodontal pockets of 4-5 mm in 61.8% and more than 6mm in 75% of participants in a rural population.[19] In the present study 19.4% patients had pocket depth of 4-5mm and 4.2% patients had 6mm or more pocket depth.

A study conducted in South American adults showed that 22.5% of adults had mild gingival inflammation, 74.0% had moderate gingival inflammation, and 3.6% had severe gingival inflammation.[20] Present study showed 33.7% patients with mild gingival inflammation, moderate gingival inflammation was observed in 47.7% patients and severe gingival inflammation was present in 1.3% patients.

CONCLUSION

This study shows that the oral hygiene status among the study population was very poor. The majority of participants of study had dental caries, plaque, calculus, gingival bleeding, gingival inflammation & a moderate periodontal probing pocket depth of 4-5 mm. This current health situation is of major dental health significance & needs urgent attention.

REFERENCES

1 Fried TR, Tinetti ME, Iannone L, O'leary JR, Towle V, Van Ness PH. Health outcome prioritization as a tool for decision making among older persons with multiple chronic conditions. Archives of internal medicine. 2011;171(20):1856-88.

2 Siddiqui TM, Wali A, Siddiqui SH, Heyat U, Nadeem M, Shamim M. An Epidemiological Study of Prevalence of Dental Caries and Periodontal Disease among adults in Deprived Areas of Karachi JOHR. 1213;4(1):3-7

3 Nomaan N, Sarah A, Yawar H. z Ulfat B. Oral health status of patients visiting Islamic International Dental Hospital. Ann. Pak. Inst. Med. Sci. 2012;8(1):27-30.

4 Petersen PE. The World Oral Health Report 2003: continuous improvement of oral health in the 21st century–the approach of the WHO Global Oral Health Programme.Community Dentistry and oral epidemiology. 2003;31:3-24.

5 Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C. The global burden of oral diseases and risks to oral health. Bulletin of the World Health Organization. 2005;83:661-9.

6 Selwitz RH, Ismail AI, Pitts NB. Dental caries. The Lancet. 2007 Jan 6;369(9555):51-9.

7 Takahashi N, Nyvad B. Caries ecology revisited: microbial dynamics and the caries process. Caries research. 2008;42(6):409-18

8 Armitage GC. Classifying periodontal diseases–a long□standing dilemma. Periodontology 2000. 2002;30(1):9-23.

9 Albandar JM, Brunelle JA, Kingman A. Destructive periodontal disease in adults 30 years of age and older in the United States, 1988-1994. Journal of periodontology. 1999;70(1):13-29.

10 Le CT, Boen JR. Health and numbers: basic biostatistical methods. New York: Wiley- Liss; 1995.

11 Petersen PE. Global policy for improvement of oral health in the 21st century–implications to oral health research of World Health Assembly 2007, World Health Organization. Community dentistry and oral epidemiology. 2009;37(1):1-8.

12 Tafere Y, Chanie S, Dessie T, Gedamu H. Assessment of prevalence of dental caries and the associated factors among patients attending dental clinic in Debre Tabor general hospital: a hospital-based cross-sectional study. BMC oral health. 2018;18(1):11-19.

13 Mulu W, Demilie T, Yimer M, Meshesha K, Abera B. Dental caries and associated factors among primary school children in Bahir Dar city: a cross-sectional study. BMC research notes. 2014;7(1):949.

14 Žemaitienė M, Grigalauskienė R, Vasiliauskienė I, Saldūnaitė K, Razmienė J, Slabšinskienė E. Prevalence and severity of dental caries among 18-year-old Lithuanian adolescents. Medicina. 2016;52(1):54-60.

15 Al-Ghannam NA, Khan NB, Al-Shammery AR, Wyne AH. Trends in dental caries and missing teeth in adult patients in Al-Ahsa, Saudi Arabia. Saudi Dental Journal. 2005;17(2):57-62.

16 Al-Shehri SA. Oral health status of older people in residential homes in Saudi Arabia. Open Journal of Stomatology. 2012;2(04):307.

17 Hermann P, Gera I, Borbély J, Fejérdy P, Madléna M. Periodontal health of an adult population in Hungary: findings of a national survey. Journal of clinical periodontology. 2009;36(6):449-57.

18 Zimmermann H, Hagenfeld D, Diercke K, El-Sayed N, Fricke J, Greiser KH, Kühnisch J, Linseisen J, Meisinger C, Pischon N, Pischon T. Pocket depth and bleeding on probing and their associations with dental, lifestyle, socioeconomic and blood variables: a cross-sectional, multicenter feasibility study of the German National Cohort. BMC oral health. 2015;15(1):7.

19 Siddiqui TM, Wali A, Siddiqui SH, Heyat U, Nadeem M, Shamim M. An Epidemiological Study of Prevalence of Dental Caries and Periodontal Disease among Adults in Deprived Areas-Karachi. JOHR. 2013;4(1):3-7.

20 Carvajal P, Gómez M, Gomes S, Costa R, Toledo A, Solanes F, Romanelli H,Oppermann R, Rösing C, Gamonal J. Prevalence, severity, and risk indicators of gingival inflammation in a multi-center study on South American adults: a cross sectional study. Journal of Applied Oral Science. 2016;24(5):524-34.

CONTRIBUTIONS BY AUTHORS

1 Mehwish Rafiq:	Conception, Drafting of the manuscript, Data Collection.
2 Rehma Hasan:	Collected the data and data analysis.
3 Mahwish Bano:	Design, and interpretation of data.