ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 10, Issue, 10, pp.74628-74630, October, 2018
DOI: https://doi.org/10.24941/ijcr.32517.10.2018

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

RISK FACTORS OF PERIODONTITIS - A CASE CONTROL STUDY

[1,*]Dr. Patel Avani M., [1]Dr. Patel Harshadkumar P., [2]Dr. Brahmbhatt Neelam, [1]Dr. Patel Mahesh K. and [3]Dr. Patel Mitesh H.

[1]Department of General Pathology, Government Dental College and Hospital, Ahmedabad 380016, India
[2]Department of Periodontia, Government Dental College and Hospital, Ahmedabad 380016, India
[3]Department of Microbiology, M and J Institute of Ophthalmology, Civil Hospital, Ahmedabad 380016, India

ARTICLE INFO

Article History:
Received 16th July, 2018
Received in revised form
07th August, 2018
Accepted 29th September, 2018
Published online 31st October, 2018

Key Words:
Periodontitis,
Gingivitis,
Risk factor.

ABSTRACT

Background: Periodontitis is related with certain systemic conditions as well as with some intra oral local factors including patients' oral practices and habits.
Objective: To review the evidence on the potential roles of modifiable and non modifiable risk factors associated with periodontitis.
Methods: A Case control Study was conducted on group of randomly selected patients coming at General Pathology Department, Institute associated with dental college in western India. Clinically diagnosed dental patients having periodontitis were considered as study population.
Results: All the patients had presented with the dental problem, of them patients having periodontitis were identified. The diagnosis was based on clinical findings and periodontitis (case) was considered if periodontal pocket depth index score was 2 – 8, and no periodontitis if score was '0 - 1'. A total of 200 respondents (ranging from 27 – 80 years) were randomly selected from the hospital patients for interview and investigation for periodontal diseases. Data analysis revealed significant association between the age patients, Diabetes mellitus, betel and tobacco chewing habit, tooth cleansing methods and devices, presence of tooth pricking habits with the development of periodontitis.
Conclusion: By delivering the proper and timely health related information raising the awareness level regarding this detrimental disease the overall health status among the population can be improved.

Citation: ***Dr. Patel Avani M., Dr. Patel Harshadkumar P., Dr. Brahmbhatt Neelam, Dr. Patel Mahesh K. and Dr. Patel Mitesh H.*****, 2018.** "Risk factors of periodontitis - A case control study", *International Journal of Current Research*, 10, (10), 74628-74630.

INTRODUCTION

The main objective of dental care is to extend the life of teeth either by prevention or by treatment of dental diseases. Main parameter to assess dental health is the mean number of teeth present per person (Sheiham *et al.,* 1969). It has been well accepted that the number of teeth decreases with age and that carries and periodontal disease are the main causes of tooth loss. The relative impact of these two disease entities may vary in different population groups and geographic areas (Lo¨e *et al.,* 1978). Distribution of dental caries and periodontal disease is almost prevalent throughout the world (Russell, 1967). Risk factors play an important role in an individual response to periodontal disease. Independent but modifiable risk factors for periodontal diseases include lifestyle factors such as smoking and alcohol consumption. They also include diseases and unhealthy conditions like diabetes mellitus, obesity, metabolic syndrome, osteoporosis and low dietary calcium and vitamin D (Robert *et al.,* 2000).

Corresponding author: **Dr. Patel Avani M.,**
Department of General Pathology, Government Dental College and Hospital, Ahmedabad 380016, India.

Studies report that the prevalence and average severity of periodontitis increases with age for groups of individuals until virtually all middle-aged people had the disease (Scherp, 1964; Brown and Lo¨e, 2000). Data from the studies by Brekhus (1929) and Allen (1944) led many to suppose that the greatest single reason for tooth loss after the age of 40 years was periodontal disease. Later, this was confirmed in a survey in Winnipeg, MB, by Trott and Cross (Trott and Cross, 1966). However, their results also showed that the percentage of teeth lost because of periodontitis was higher than the percentage of patients who lost teeth because of periodontitis. Periodontitis is often associated with diabetes and might be considered one of the chronic complications of diabetes mellitus both in type 1 and type 2 DM (Guglielmo Campus *et al.,* 2005). This proposed study is designed to evaluate the different risk factors related with periodontitis among randomly assessed patients in dental hospital.

MATERIALS AND METHODS

A case control study was conducted on group of randomly selected patients coming at General Pathology department,

Institute associated with dental college in western India. for blood sugar testing for the period of 6 months from January 2018 to June 2018.Clinically diagnosed dental patients having periodontitis were considered as cases and dental patients other than periodontitis were considered as control.

Selection criteria

Inclusion criteria: A total number of 100 cases of periodontitis and 100 controls having the oral diseases other than periodontitis visiting dental hospital during the study period were enrolled in this study.

Exclusion criteria

- Patients other than dental diseases
- Patients refused to give the written consent.

Unwillingness to participate

Study procedure

Study subjects were collected from a Dental patients coming at Dental Institute. A total 200 randomly selected patients coming at Hospital (ranging from 27 – 80 years) were completed a questionnaire and were invited to participate in a detailed personal interview in General Pathology department after completion of clinical examination in an oral diagnosis department by dentist. Random blood sugar testing was done at General Pathology department by Glucose oxidase – Peroxidase method. The diagnosis was based on clinical findings and periodontitis (case) was considered if periodontal pocket depth index score was 2 – 8, and no periodontitis if score was '0 - 1'. The periodontal examinations were undertaken with the use of a lighted mouth mirror and a periodontal probe. All teeth present were examined. Gingival recession was measured on all four surfaces of each remaining tooth. Where root surfaces were exposed, gingival recession was given a positive score; where the gingival margin was coronal to the cemento-enamel junction (CEJ), it was expressed as a negative score. Pocket depth was measured at two sites on all remaining teeth. These were buccal and mesial sites on all teeth except the upper molars, where palatal and mesial sites were probed. The palatal surfaces of upper molars were probed, since these are the sites where the deepest pockets and most attachment loss are often found. A periodontal attachment loss was calculated from the sum of the gingival recession and pocket depth measures and represents the distance from the CEJ to the base of the gingival sulcus or periodontal pocket. As such, it provides a historical record of periodontal disease experience. The examinations were undertaken by well experienced dentist at the hospital. Frequency distribution tables of patients' age, religion, Demographic characteristics, diabetes profile, chronic diseases, risky behaviors related to periodontitis, brushing habits, tooth cleaning materials, gum pricking habits, Chief complaint, findings from the examination, periodontitis and gingivitis index were constructed and to see the association between periodontitis and its risk factors.

RESULTS

The study was carried out in the General Pathology department, Institute associated with dental college in western India. About 100 cases and 100controls were enrolled in the study. The age range of population studied was 27 to 80 years. Among 200 patients examined 51 % were male and 49% were female. About 50% of patients having periodontitis are above the age of 50years, 26% between 40-50years and 24% below 40 years. Secondary level educated formed the main bulk followed by nonformal (23%) and primary level educated (21.7%). Among female patients 72.3% are housewives and 27.7% are working. Among male patients 10% are unemployed. Other are service holder, businessmen, farmer or student. Demographic characteristics of the patients shows older patients are having periodontitis more than younger age group. Females tend to develop periodontitis more than males. Total 89 patients out of 200(44.5%) having Diabetes mellitus. 56 diabetic patients have periodontitis. Association of smoking and betel leaf chewing with periodontitis revealed that there was a significant relationship between betel leaf chewing and periodontitis.

Table 1. Association of Age and Gender with Periodontitis

Age	Cases		Control		Total
In years	Male	Female	Male	Female	
	N (%)	N (%)	N (%)	N (%)	N (%)
<40	10 (21.3)	14 (26.4)	18 (32.7)	16 (35.6)	58 (29)
40-50	11 (23.4)	15 (28.3)	13 (23.6)	15 (33.3)	54 (27)
>50	26 (55.3)	24 (45.2)	24 (43.6)	14 (31.1)	88 (44)
Total	47 (100)	53 (100)	55 (100)	45 (100)	200 (100)

Table 2. Association between Diabetes Mellitus and Periodontitis

Diabetes related variables	Group					
	Cases		Control		Total	
	N	%	N	%	N	%
New cases	12	21.4	02	6.1	14	15.7
Known cases	44	78.6	31	93.9	75	84.3
Total	56	100	33	100	89	100

Table 3. Association of smoking and betel leaf or tobacco chewing habit with Periodontitis

	Cases(100)		Control(100)		Total(200)	
	N	%	N	%	N	%
Smoking	4	4	2	2	6	3
Tobacco or betel leaf chewing	34	34	25	25	59	29.5

Table 4. Association between teeth cleansing material used and Periodontitis

Teeth cleansing material	Cases N	Control N	Total N
Tooth paste	85	73	158
Tooth powder	12	23	35
Coal	01	00	01
Neemstick	01	03	04
Empty finger	01	01	02
Total	100	100	200

Table 5. Association between tooth cleaning frequency and Periodontitis

Tooth cleaning frequency	Cases	Control	Total
Once a day	58	55	113
Twice a day	40	45	85
≥ 3 times a day	02	00	02
Total	100	100	200

Table 6. Association between tooth pricking habit and Periodontitis

Tooth pricking habit	Cases	Control	Total
Present	09	03	12
Absent	91	97	188
Total	100	100	200

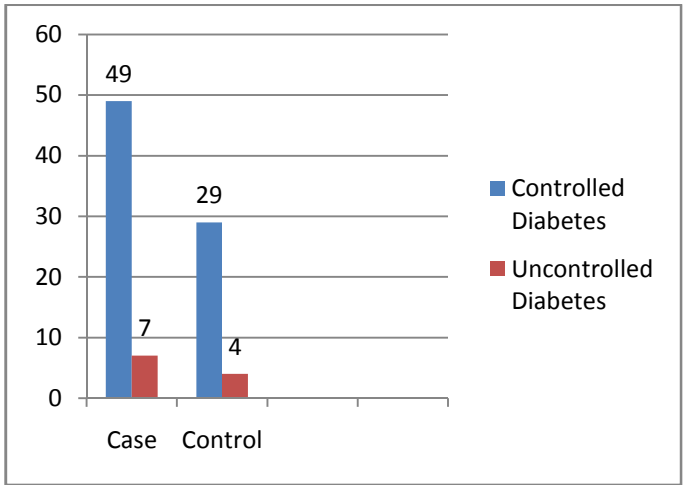

Fig. 1. Comparison of Controlled & Uncontrolled Diabetes in Case & Control Group

No significant relationship found between smoking and periodontitis. Periodontitis was significantly higher among the tooth brush users. Very few patients use coal, empty finger or other cleaning material such as salt. Tooth pricking habit is also found higher (75%) among cases than control (25%).

DISCUSSION

The overall study of 100 cases and 100 control patients shows the significant association of periodontitis with its risk factors. It is important to make the distinction that the risk factors are associated with a disease but do not necessarily cause the disease. In the present study prevalence of periodontitis was more in diabetic patients than among non diabetic patients. Similar results were reported by Matu et al in 2009 in his study of periodontal diseases among diabetic patients in South Africa (Matu *et al.,* 2009). Glickmann in 1862 described the oral symptoms of Diabetes mellitus as a systemic promoting factor creating suitable conditions producing gingivitis and periodontitis (Fermin, 1990). In our study out of 56 diabetic patients with periodontitis, 12 patients were diagnosed with diabetes at the time of study. Among 56 cases of diabetes 7 (12.5%) patients having uncontrolled diabetes while 49 (87.5 %) patients have controlled diabetes with oral hypoglycemic drugs. Epidemiological research indicates that diabetes increases the risk of periodontal diseases (Papapanoun, 1996). Recently a wealth of epidemiological ,clinical and in vitro studies have emerged that have provided irrefutable evidence that smoking negatively impact periodontal health and propose mechanisms by which this may occur (Albandar, 2000). In our study out of 200 respondents 6 (3%) were smokers, out of them 4 have periodontitis. Higher incidence of periodontitis is seen among Tobacco or betel leaf chewers. A site specific study by Poore *et al.* (1995) revealed significantly higher gingival inflammation at smokeless tobacco placement sites as compared to non users. Results of present study shows higher no. of cases (34%) as compared to control (25%) are using betel leaf or tobacco chewing for long duration. Brushing frequency and habits also play a major role in development or prevention of periodontal diseases.

Conclusion

This study found significant association between the Periodontitis and the factors considering as the cause of its development. The susceptibility to periodontal disease may be the result of defects in neutrophil function. The approach to the diagnosis and treatment of periodontal disease is changing. The disease has not changed, but dentistry's understanding of the pathogenesis and appreciation for the influence of host factors has improved. As a result, the approach to the management of the disease is evolving. Health professionals should be educated about the common oral manifestations of Diabetes. Patients with Diabetes undoubtedly have a susceptibility for more severe periodontal diseases. Future studies will likely be focused on understanding the relationship between genetic and environmental factors and also on the rapid and practical identification of at-risk individuals, and will allow us to tailor therapy to more closely suit the needs of our patients as individuals and thus achieve better results.

REFERENCES

Sheiham A, Hobdell MH, Cowell CR. 1969. Patterns of tooth loss in British populations. Studies on industrial populations. *Br Dent J.,* 126: 255–60.

Lo¨e H, Anerud A., Boysen H, Smith M. 1978. The natural history of periodontal disease in man. The rate of periodontal destruction before 40 years of age. *J Periodontol.,* 49: 607–620.

Russell AL. 1967. Epidemiology of periodontal disease. *Int Dent J.,* 17: 282–296.

Robert J. Genco, Wenche S. Borgnakke, 2000. Risk factors for periodontal disease; *Periodontology*, Volume 62 issue 1.

Scherp HW. 1964. Current concepts in periodontal disease research: epidemiological contributions. *J Am Dent Assoc.,* 68: 667–675.

Brown LJ, Lo¨e H. 1993. Prevalence, extent, severity and progression of periodontal disease. *Periodontology*, 2000 1993; 2: 57–71.

Brekhus PJ. 1929. Dental disease and its relation to the loss of human teeth. *J Am Dent Assoc.,* 16: 2237–2247.

Allen EF. 1944. Statistical study of the primary causes of extractions. *J Dent Res.,* 23: 453–458.

Trott JR, Cross HG. 1966. An analysis of the principle reasons for tooth extractions in 1813 patients in Manitoba. *Dent Pract.,* 17: 20–27.

Guglielmo Campus, Abeer Salem, Sergio Uzzau, Edoardo Baldoni and Giancarlo Tonolo, 2005. Dental instutete, University of Sassari, Italy; *J of Periodontology,* Vol 76 ;Issue 3;P 418-425

Matu NK, Stephan L, Lalloo R. 2009. Prevelence and severity of periodontal disease. Type 2 diabetes versus non diabetics. *SADJ*, 64:66-8.

Fermin AC. 1990. Clinical periodontology.7th ed. Philadelphia: W.B. Saunders company, pp.446-7.

Papapanoun PN. 1996. Periodontal diseases: Epidemiology. *Ann Periodontal.,* 1:1-36.

Albandar. 2000. *J. Periodontal.,* 71(12):1874-81.

Poore TK, Johnson GK, Reinhardt RA, Organ cc, 1995. The effects of smokless tobacco on clinical parameters of inflammation and gingival crevicular fluid prostaglandin E2, Interleukin-1a and Interleukin-1b. *J.Periodontol.,* 66:177-83.

****