Original Research Paper

Periodontics

PREVALENCE OF PERIODONTAL DISEASE AND TREATMENT NEEDS IN A FACTORY POPULATION IN TRIVANDRUM DISTRICT, KERALA, INDIA: A CROSS SECTIONAL STUDY

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ABSTRACT **OBJECTIVES:** Periodontal Diseases have a universal prevalence. The CPITN assesses the periodontal status and the treatment needs and helps in identifying the actual prevalence of periodontitis and chart a plan to reduce the incidence of tooth loss. There are relatively few studies on periodontal diseases in Kerala.
METHODS: The prevalence of periodontal diseases and treatment needs in a population of factory workers in Trivandrum, Kerala, was assessed by using the CPITN system.
RESULTS: Only 0.6% of the population were free of periodontal disease; 86% exhibited calculus and shallow pathologic pockets, while about 9% presented deep pathologic pockets. Treatment need requirements indicate that 95% of the sample population needed professional scaling and curettage; while only 9% needed advanced surgical care.
CONCLUSION: A major part of periodontal health care planning should be devoted to developing preventive measures aimed at the younger age groups to prevent various gingival and periodontal diseases.

KEYWORDS : Periodontal Diseases; Cpitn; Factory Workers; Kerala

SIGNIFICANCE OF THE STUDY

Most of the privately practicing Dentists in Kerala are clustered in urban areas. Kerala State employs many dentists in the rural areas. Hence with the available manpower and limited economic resources; this high prevalence of periodontal diseases makes it important to chalk out a strategy for assessing the prevalence of periodontal diseases and plan the treatment needs of the population.

I. INTRODUCTION

Gingival and periodontal diseases have afflicted mankind since the advent of history. The high prevalence of the disease in many populations reflect not only the low priority given to oral hygiene by the public, but also an apparent lack of concern for periodontal care. The CPITN system assess the periodontal status and treatment needs of the populations (Roman A, Pop A 1998). It has the potential to integrate dental professional, patient and community programs in reducing the prevalence of periodontitis. Kerala state has very few data regarding the periodontal disease among the different sections of the society (Gupta Om P.,1964; Anil S, Hari S, Vijayakumar T,1990; Jayakrishnan R, Sharma P, Thankappan K., 2005). This is a serious limitation for providing oral health services. In the present study we aim to provide the prevalence of periodontal disease of a population of factory workers in Trivandrum, the capital city of Kerala, by using the CPITN system.

II. MATERIALS AND METHODS

An oral health survey was conducted based on the CPITN system in a factory in Trivandrum to estimate the prevalence of periodontal disease and assess the treatment needs. The East India Clays Ltd, a semi Government institution, employs about 400 workers. The factory is situated at a peripheral semi urban area of the city with the majority of workers residing in peripheral semirural areas of the city.

STUDY SUBJECTS & SELECTION METHOD:

A total of 196 factory workers were examined. Subjects were selected by simple random sampling after obtaining official permission from the authorities. The nature of the study was explained in the regional language. Questionnaires were based on specially designed proforma which assessed details like age, sex, religion, income, educational status, personal habits, oral hygiene measures and previous visits to dentists. The observations were recorded based on the CPITN system.

INCLUSION CRITERIA:

All permanent factory workers employed in the factory for the past 3 years; aged between 20–60 years; willing to participate in the study.

EXCLUSION CRITERIA:

Subjects unwilling to participate in the study / were absent during the study period.

III. OBSERVATIONS AND RESULTS

The following basic information was obtained from the CPITN data. The data was analyzed and tabulated as below.

1] Prevalence of Periodontal disease according to CPITN scores: [Table 1]

Of the 196 subjects who attended the survey, 31.6% belonged to the 20-29 years [young] age group; 45.9% to the 30-44 years [early middle] age group and 22.5% belonged to the 45-55 years [late middle] age group. Persons scoring completely healthy periodontium [Code 0] decreased from 1.68 in the 20-29 years group to 0 in the 45-55 years group.

Table 1: Prevalence of Periodontal disease according to CPITN scores

Age group	CPITN Code 0	CPITN Code 1	CPITN Code 2	CPITN Code 3	CPITN Code 4	CPITN Code X
20-29	1.6	6.5	72.6	17.7	1.6	0
30-44	1.1	4.4	57.8	31.1	5.6	0
45-55	0	0	27.3	54.5	15.9	2.3

In the young age group, majority [72.6%] presented with calculus [code 2].In the early middle age group, a decrease in the percentage of persons presenting with completely healthy periodontium, bleeding on probing and calculus were noted. And the majority of workers presented with calculus. But in the late middle age group, none presented with completely healthy periodontium, and none scored Code 1. Besides 2.3% of the subjects were fully edentulous. Edentulousness was noted only in this late middle age group.

2] Mean number of sextants affected with the CPITN codes, per person: [Tables 2]

In the young age group, calculus showed the greatest incidence, with a mean of 3.19 sextants per person scoring

Code 2. In the early middle age group, mean sextants scoring as healthy decreased to 0.78. Missing sextant made their first appearance, though minimal at 0.07 in this age group. In the late middle age group, no sextants were free from periodontal disease. The greatest increase was noted in the mean number of excluded sextants per person.

Table 2: Percentage of persons who have as highest score and distribution of mean number of sextants per person having individual CPITN scores

Factory	Age Group	No	Percentage of persons who have as highest score						Mean number of sextants with					
			0 Healthy	1 Bleeding	2 Calculus	3 Shallow Pockets	4 Deep Pockets	X Excluded	0 Healthy	1 Bleeding	2 Calculus	3 Shallow Pockets	4 Deep Pockets	X Excluded
English India Clays Ltd	20-29	62	1.6	6.5	72.6	17.7	1.6	0	1.24	1.21	3.19	0.34	0.02	0
	30-44	90	1.1	4.4	57.8	31.1	5.6	0	0.78	0.84	3.53	0.67	0.11	0.07
	45-55	44	0	0	27.3	54.5	15.9	2.3	0	0.25	2.89	1.59	0.52	0.75
	20-55	196	1	4.1	55.7	32.2	6.6	0.5	0.75	0.83	3.28	0.77	0.17	0.2

3] Periodontal treatment needs: [Table 3]
In the young adult group, 1.6% were free of periodontal disease and required no treatment. A mean of 3.5 sextants per person needed TN2 and 0.02 sextant TN3. In the second age group, 1.1% needed no periodontal care. A mean of 4.3 sextants per person needed TN2 and 0.11 TN3. The third age group showed some difference in that 2.3% needed no periodontal treatment because of edentulousness. 97.7% needed TN1, 97.7% TN2 and 15.9% Tn3.

Table 3: Periodontal Treatment Need Requirements English India Clays Ltd.

Age Group	TN0	TN1	TN2	TN3
20-29	1.6	98.4	91.9	1.6
30-44	1.1	98.9	94.4	5.6
45-55	2.3	97.7	97.7	15.9

The mean edentulousness increased with age. The factory population had a mean of 2.3 missing teeth. Also 52.6% of population in the English India Clays Ltd had past visits to dentist.

IV. DISCUSSION

Past epidemiological surveys held in India indicate a very high prevalence of periodontal disease with varying degrees of severity among different types of factory workers (Sanadhya Sudhanshu, Aapaliya Pankaj, Jain Sorabh, Sharma Nidhi, 2014). Very few studies have assessed the oral health status and treatment need of personnel living in Trivandrum, Kerala. Gupta et al (1964) surveyed the general population of Trivandrum aged 11 -80 years and found a 100% prevalence for gingivitis from the age of 31 years onwards. Anil and Hari et al (1990) and Jayakrishnan R (2005) conducted CPITN studies for assessing periodontal diseases in Trivandrum.

The CPITN system is a realistic approach for screening populations based on simple recording procedure which permits rapid assessment of individuals for periodontal conditions related to treatment needs. But, the sample size and sampling scheme restrict generalizations from this study. But some observations about the periodontal health status of the general population in Trivandrum can be made from this survey.

The gradual worsening of the periodontal conditions with increasing age reflected the chronic progressive nature of periodontal disease. The typical pattern of endemic gingivitis and calculus, and low proportion of pathologic deep pockets were reflected in our study too similar to study of Smith AC (1993). Presence of calculus was the most common period ontal condition; similar to studies by Skaleric U (1989) and Anil S (1990). The lower levels of edentulousness in the study population may be attributed to greater retention of teeth due to fewer visits to dentists among the workers. In this study a significant finding was the absence of any subject fully free from periodontal disease. Deep pathologic pockets were found in 1.6% of the population in young adults. In the early middle aged, there was a predominance for calculus-shallow pocket complex. Even though the periodontal conditions worsened with age, the proportion of those with bleeding and calculus decreased. This may be expected as being an inherent disadvantage of the hierarchical method of scoring in the CPITN system. The proportion of subject with deep pockets increased almost three-fold in the late middle age group. Also, fully edentulous subjects made their first appearance in this age group.

The presentation of CPITN data according to the worst score of the individual helped us to assess the treatment needs of the population. In the young age group 1.6% of the Clays Ltd. population needed no treatment. But this can be attributed to the low number of sample size in this age group. 99-100% of the population belonging to early middle age group required some form of periodontal treatment, while only 5.6% needed advanced surgical care. In the late middle age group 2.4% needed no periodontal treatment, not because they were free of disease, but due to them being completely edentulous. But 16% of the old age group needed advanced periodontal care requiring the services of a Periodontist. The overall picture showed that 96-98% of the adults needed oral hygiene instructions, 92-94% scaling and curettage, and 7-8% advanced surgical care.

Many subjects felt the need for dental treatment but the work timings restricted them from availing dental treatments. This was similar to the report by Kawamura M (1999) which highlights the lifestyle and employment restriction affecting the dental health of subjects.

V. SUMMARY AND CONCLUSION

CPITN data of the factory workers are limited with respect to the prevalence and severity of periodontal diseases and the treatment requirements. A major part of periodontal health care planning should be devoted to developing preventive measures aimed at the younger age groups to prevent various gingival and periodontal diseases.

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