Original Article

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Dentistry Section

Periodontal Health among Non-Hospitalized Chronic Psychiatric Patients in Mangaluru City-India

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ABSTRACT

Introduction: A substantial section of society constituting the mentally ill and psychiatric patients deserve special attention. Evidence has suggested that psychological factors have contributed to an increase in the susceptibility to periodontal disease.

Aim: The aim of the study was to evaluate the gingival and periodontal health of chronically non-hospitalized psychiatric patients in Mangaluru city, India.

Materials and Methods: Forty one psychiatric patients having chronic psychiatric illness and on neuroleptic medications for a minimum of 2 years were included in the study. The control group consisted of 41 healthy dental patients who were selected to match the study group by age and gender, and for both groups 20 teeth excluding the third molars should be present. Demographic characteristics, dental examination including gingival index and periodontal health according to the community periodontal index were recorded for each patient in both the groups.

Results: In the psychiatric patient group (Group A) 47.1% subjects were suffering from schizophrenia and 17.6% subjects were having mood disorder. Gingivitis varied from mild to severe among the patients of both the groups. Bleeding on probing (CPI 1) was recorded in 23.5% in Group A and 14.6% in Group B. Dental calculus (CPI 2) in 38.2% in Group A and 58.5% in Group B of the subjects, 20.6% with at least one 4mm to 5mm pocket (CPI 3), and 17.6% with at least one 6mm pocket (CPI 4).

Conclusion: The present study underlines a considerable need for prevention and treatment of periodontal disease among chronic psychiatric patients in Mangaluru city. Every effort should be made to increase the awareness of this cohort regarding the importance of oral hygiene practices and on the early diagnosis of periodontal problems.

Keywords: Gingivitis, Oral Health, Periodontal pocket, Psychiatric illness

INTRODUCTION

Oral health is an important and integral part of general health and is essential for the overall well-being of a human being. The scientific evidence gathered from the past few decades has significantly added the importance of oral health in craniofacial complex. Oral health can affect the overall health in a number of ways. Periodontitis is an inflammatory response of the periodontium, which involves the destruction of investing tissues around the teeth and results in loss of tooth support and leading to tooth loss. Though to initiate the disease process the bacterial pathogens are required, it has become evident that their presence alone is not sufficient to cause the tissue destruction [1-3]. Periodontal disease and dental caries are the most frequent oral health problems in the world [4]. The etiological significance of biological and behavioral risk factors for periodontal diseases, such as smoking, advancing age, oral hygiene, and systemic diseases like diabetes mellitus has already been established [5]. Clinical observations and epidemiologic studies have suggested that some negative life events and psychological factors have contributed to an increase in the susceptibility to periodontal disease [6].

The mentally ill or psychiatric patients form a substantial section of the community deserving special attention. These people are amongst the most vulnerable groups to poor oral health because of the general self -neglect, poor diet, heavy smoking, irregular oral hygiene habits and the side effect of medications [7]. This leads to unfavorable effects on the teeth and periodontal tissues. Chronic psychiatric patients have been documented in many countries for having poorer oral health than other segments of the population [8]. This group is often neglected in regard of dental treatment. This may be due to lack of motivation and apathy, misconception and negative attitudes, limited cooperation, low adaptability to new prostheses, mobility difficulties, fear of treatment, poor communication as well as financial considerations [9].

Several studies have been done to access the oral health among ill hospitalized psychiatric patients. They have reported poor oral health among hospitalized patient with psychiatric illness compared to general population [8-10].

Since in India there is lack of quantitative data on periodontal health among this special group, present study was aimed at comparing periodontal health among non-institutionalized patients with mental illness with similar group without such history.

MATERIALS AND METHODS

The present case control study was approved by institutional ethical committee, MCODS, Manipal University, Mangaluru, India. The study was conducted from January 2015 to June 2015. The study groups (Group A) for this investigation consisted of 41psychiatric patients above 18yrs who visited Department of Psychiatry, KMC Hospital, Attavara, Mangaluru, India. Patients were included in the study after reviewing their medical files only those who had chronic psychiatric illness (according to International Classification Of Disease ICD-10) [11]. For each patient diagnosis, duration of psychiatric illness, medication and duration of medication was recorded. The non hospitalized patients who were not aggressive and co-operative for intra-oral examination with minimum 20 teeth excluding third molars were included. Non hospitalized ambulatory psychiatric patients and whose parents/guardians/caretakers were willing to give consent for inclusion as study subjects were considered in the study.

Patients suffering from other systemic disorders other than psychiatric illness, patients suffering from other chronic oral diseases like malignant tumors and patients on cancer chemo-therapy, patients with the presence of severe crowding or anatomical variations in dentition, pregnant and lactating females and who have received recent treatment with anti-inflammatory drugs, antibiotics, steroids, hormonal replacement therapy, periodontal therapy in past three months were excluded from the study.

In the control group (Group B) 41 subjects who visited Department of Periodontology, MCODS, Mangaluru, India were selected to match study group by age and gender. All the inclusion criteria and the exclusion criteria were same for both the Group A and Group B except those related to mental disorders are only for the test group i.e., Group A not for control group i.e., Group B.

All the patients underwent clinical examination after signing the written informed consent. All the oral examinations were carried out by the single examiner. During the dental examination, for each patient in both the groups the data such as age, gender, education level, occupation, marital status, income smoking habits were recorded.

Gingival index was recorded by examining the buccal and lingual surface of index teeth [12]. Based on gingival score condition was categorized as mild, moderate and severe gingivitis. In Community Periodontal Index (CPI) [13] teeth considered were 17, 16, 11, 26, 27, 36, 37, 31, 46, and 47. A sextant was only examined if there were at least two teeth not indicated for extraction; otherwise that sextant was classified as an excluded sextant. If index tooth was missing in the sextant qualifying for examination, the remaining teeth in the sextant were examined and the highest score was recorded as the value for the sextant. These observations were then used to calculate a final CPI score. Meanwhile, CPI code for every patient was determined according to the sextant with the highest code. Descriptive statistics were calculated and Chi square test was applied for the collected data.

RESULTS

In Group A out of 41 patients seven patients were excluded because they had less than 20 teeth (four subjects) and not allowed to examine completely (three subjects). The distribution of study population based on ICD - 10 classification [11] among different age groups in males and females. Of the total 47.1% (16) study population was affected by schizophrenia followed by17.6% (6) suffering from affective mood disorders. Around 14.7% study population was suffering from depression and mania. Only 5.9% study participants were having anxiety as psychiatric illness [Table/Fig-1].

Periodontal parameters such as gingival index and CPI index were recorded for both the test and control group. Total 100 percent of the study population suffered from some degree of gingivitis. The severity of gingivitis varied from mild to severe but the difference was not statistically significant. Around 11.8%, 32.4% and 55.9% population had mild, moderate and severe gingivitis respectively. In the control group 31.7%, 12.2% and 56.1% subjects had mild, moderate and severe gingivitis respectively [Table/Fig-2].

Sychiatric Disorders	Group A*
Schezophrenia	16 (47.1)
Mood Disorder	6(17.6)
Depression	5(14.7)
	5 (14.7)
Mania	5(14.7)
Anxiety	2(5.9)

[Table/Fig-1]: Showing descriptive statistics of psychiatric illness among group A.
* % in parenthesis

Gingival Condition	Group			Chi square	p-value*
	Mean	Group A	Group B	Value	
GI	Mild	4(11.8)	13(31.7)	6.08	0.03*
	Moderate	11(32.4)	5(12.2)		
	Severe	19(55.9)	23(56.1)		

[Table/Fig-2]: Gingival condition between Group A and Group B subjects.
*-p=<0.001 is statistically significant, GI-gingival index,

Oral condition		GROUP A *		GROUP B *		Chi square	p-value*
CPI	0	0	(0.0)	11	(26.8)	27.13	<0.001*
	1	8	(23.5)	6	(14.6)		
	2	13	(38.2)	24	(58.5)		
	3	7	(20.6)	0	(0.0)		
	4	6	(17.6)	0	(0.0)		
LOA (Loss of Attachment)	0	14	(41.2)	34	(82.9)	16.93	0.001*
	1	6	(17.6)	5	(12.2)		
	2	8	(23.5)	1	(2.4)		
	3	6	(17.6)	1	(2.4)		

[Table/Fig-3]: Association of oral condition and CPI index scores between Group A and Group B subjects.
- Chi square test p=<0.001 is statistically significant, % in *- % in parenthesis

The status of periodontal condition when assessed using CPI revealed a significant difference between the test and control group (p= 0.001). The mean number of the sextants with a CPI score of 1, 2, 3 and 4 were significantly higher among psychiatric patients. In the control group the mean number of sextants with score of 0 and 1 and 2 was significantly more [Table/Fig-3].

DISCUSSION

Oral health has an impact on overall health, self- esteem and quality of life [8] but often it has low priority in the context of mental health and in some phases of illness, the priority may be non-existent. Many studies have proved the negative role of psychiatric illness on oral health [8,9,13-16]. Most of the studies conducted were among the patients who were hospitalized for the mental illness. Very few number of studies have been conducted by comparing the group with or without mental illness in non hospitalized patients [8,16,17] [Table/Fig-4]. In the present study the study group subjects were not hospitalized and majority of the population were complaining bleeding gums as the dental problem. The entire population (study and comparison group) was suffering from gingivitis which varied from mild gingivitis to severe gingivitis which was in accordance earlier studies [8,9,10,14,16]. In the present study in the test group majority of population was having the pocket depth varying from 4mm-6mm or more. These finding were in accordance with previous studies [9,10,17,18].

Dental plaque removal at least once per day is sufficient for the prevention of most infection and inflammation related oral disorders [19]. The lack of proper oral hygiene contributes to the increased prevalence of periodontal disease. This suggests increased need of preventive aspect among the population. These problems are especially prominent in the partly and totally helpless group due to physical limitations as in case of this study. This result is consistent with previous findings [15]. Patients who were partially or totally helpless had increased CPI 3 and CPI 4 scores and this was expected as the degree of helplessness worsened and the ability to perform their daily activities reduces. Schizophrenia was the major psychiatric illness in the present study in study group and this is in accordance with earlier studies [14,15]. Hede reported that negative symptoms in schizophrenia and personality disorders are possibly responsible for poor toothbrushing habits [20]. Despite this, it has been suggested that patients with schizophrenia could maintain a good tooth brushing habit [21]. Many patients suffering

from long-term psychiatric illness are on medication for long periods. It seems that the effect of psychotropic medication on the periodontium was due to a high rate of calculus deposits, resulting from oral hygiene neglect, xerostomia and alteration of microbial profile [21]. In this study, patients ingested different doses, types and combinations of psychiatric and general medications. For this reason, we can't conclude with accuracy the real effects of these medications. Due to variety and complexity of medications, they were not considered for the statistical analysis. Almost all of the patients were receiving potentially xerostomic medications. Patient should be made aware of these factors and additional supplements can be prescribed.

Title	Details of the study	Conclusion	Ref. no.
Oral health status and treatment needs in institutionalized psychiatric patients: one year descriptive cross-sectional study Indian J Dent Res. 2006; 17(4):171-77.	Total 220 psychiatric patients admitted in two general hospitals of Davangere, India during the period of one year were included in the study. The oral health status was evaluated with respect to caries, oral hygiene, and periodontal status	The findings of this study demonstrates low caries prevalence, poor oral hygiene, and extensive unmet needs for dental treatment.	[15]
Oral health status of psychiatric in-patients in Serbia and implications for their dental care. Croat Med J. 2010;51(5):443-50	Sample size -186 subjects in test group and 186 subjects in control group DMFT, CPI and Plaque index was recorded	Psychiatric in-patients in Serbia have poorer oral health than healthy controls. It is necessary to intensify preventive dental care in this vulnerable population	[22]
Oral health of psychiatric patients: A cross-sectional comparision study Dent Res J. 2012; 9 :209-14.	Cross-sectional study Sample size-133 patients attending the psychiatric outpatient department (OPD) as the study group 133 patients attending the general OPD of the same hospital as the control group. Both groups were examined for oral health status, CPI	These results are very much comparable with the control group. Periodontal condition worsened as age increased, suggested by community periodontal index. Only limited number of patients had healthy gingiva in the age group 20-50 years while it was zero for 50 years and above.	[16]
Oral health status of patients with mental disorders in southwest Ethiopia. PLoS One. 2012; 7(6): e39142.	Sample size -240 psychiatric illness subjects CPI, DMFT recorded	The oral health status of the psychiatric patients was poor. Thus, health education about oral hygiene should be given for psychiatric patients so they can avoid the frequent intake of sweets, smoking and learn correct tooth brushing technique.	[9]
Oral health status and treatment needs among psychiatric inpatients in Rennes, France: a cross-sectional study. BMC Psychiatry. 2013 Sep 21;13:227	Sample size -161 DMFT, OHI-s and salivary flow were recorded	The DMFT was similar to low income French population but psychiatric patients had almost 4 times more decayed teeth, Oral health appeared to be better than in most other countries. But compared to general population, the still unmet dental and prosthetic needs.	[23]

[Table/Fig-4]: Few studies conducted among the psychiatric population.

Clinical Implications of the Study: Poor periodontal health among the study population reveals the inadequacy of both preventive programs and specialized professional services. Future research should focus on regular monitoring of the periodontal health status among chronic psychiatric patients. The availability of treatment resources to provide best care to this special group of people also should be considered and monitored. Awareness regarding oral health and hygiene for health care professionals, especially nurses, should be channelized through the educational programs.

LIMITATION

Small sample size is one of the limitations of the study. Follow up and referrals should be included for further treatments for those who are in need.

CONCLUSION

This study showed that subjects suffering from psychiatric disorders had poor periodontal health compared to the general population. Specific preventive dental program should be incorporated as an integral part along with psychiatric treatment and care. On regular basis topical fluoride application, mouth wash usage and oral prophylaxis should be planned for this special group of patients. Along with psychiatric medication artificial saliva usage should be incorporated to combat xerostomia. In order to promote proper oral health and to reduce the risk of oral diseases, health professionals in both the dental and medical fields need to take the responsibility to develop programs to educate more about the oral health implications and encouraged to meet dentists on a regular basis to seek active and continued care for their problems in order to have a satisfactory prognosis.

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