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Original Research

Smoking-Induced Periodontitis in India: A Survey of Attitude and Practices of Family Dentists in India toward its Management

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Abstract:

Background: Smoking-induced periodontitis (SIP) is one of the major varieties of periodontitis emerging now in Indian population. Due to the increasing prevalence of smoking-induced periodontitis and the shortage of periodontists in India; Indian dentists have an important role in managing SIP for Indian population. The purpose of the study was to examine the sources of knowledge, attitudes, and practices of family dentists regarding the management of SIP.

Material and Methods: Information on the prevalence rate of SIP, demographic, exposure, and treatment variables was collected with the help of a single, prevalidated questionnaire from dentists coming to attend a conference from all over India in 2013. They were supposed to respond anonymously to written questions with the support of their available data from clinic about their sources of knowledge about management of SIP, the methods of management of SIP they advise their patients, their knowledge of the treatment of SIP and their attitudes towards people with SIP. Questionnaires regarding these concerns were completed by 800 family dentists.

Results: Out of 800 dentists, 719 (90%) of them usually manage their patients with these concomitant risk factor. Their most common recommendations for SIP were to stop smoking, take meticulous oral hygiene, to maintain sincerity during institution of maintenance phase of therapy. Almost all dentists 97% reported counseling for quitting smoking habit. 60% reported lacking knowledge about the personal oral hygiene of their patients. 57% answered correctly regarding the effect of the quitting of their smoking habit.

Conclusion: The majority of dentists surveyed, usually manage their own patients and do not refer them to periodontists. There is a lack of clarity in getting patients information, which is a major cause of failure in instituting proper therapeutic majors. Implementation of strategies, those will enhance the efficiencies and confidences of family dentists in the management of SIP are important for achieving successful treatment of this problem in Indian population.

Key Words: Periodontitis, periodontium, smoking

Introduction

Tobacco use, including smoking and non-smoking forms of tobacco, is common in India.[1] The reports of tobacco use in different population groups, show its prevalence from about 15% to over 50% among men in India.[1,2] Global Youth Tobacco Survey study was reported, on an average up to about 10% individuals are having ever smoking habit.[3] One of the major environmental factors associated with accelerated periodontal destruction is smoking. A section of Indian youth is subjected to suffer from smoking-induced periodontitis (SIP) because of their habit of smoking and suffer from excessive loss of periodontal support in later part of their life. Myocardial infarction and lungs diseases are associated with tobacco smoking among aged individuals.[4] SIP is emerging as a significant periodontal health problem among all variety of periodontal diseases in adults.[5] It is the second most cause of loss of teeth after dental caries among adults in developing countries.[6] In India, tobacco smoking is found to be in different forms, out of them mostly in the form of cigarette smoking, is recognized as the most important environmental risk factor of periodontitis. Periodontal diseases are a dynamic phenomenon with cyclical patterns of progression and resolution at any given site.[7] Gingival bleeding has been found to be a less pronounced clinical feature associated with smokers due to nicotine-induced vasoconstriction and heavy gingival keratinization. Smoking is thought to impair the immune response and compromises the periodontal tissue's ability to heal, following a period of disease activity.[8] Microbes, such as *Actinobacillus actinomycetemcomitans*, *Prevotella intermedia*, and *Eikenella corrodens*, are associated with deep periodontal pockets in smokers.[9] Pocket depth measurements are found to be greater in smokers due to increased alveolar bone loss with relatively less features of inflammation.[10] The population impact of smoking on periodontitis also varies according to the frequency of exposure to tobacco smoking in populations.[11] Pocket depth measurements are found to be greater in smokers due to increased alveolar bone loss.[10-12] The periodontal breakdown has been shown to be a more severe among current smokers compared to former smokers. Those who have never smoked have been observed to have the lowest risk.[12] The present report provides information on the prevalence of type of periodontal care provided by dentists from different places in India with special reference to SIP. Tobacco smoking probably plays a significant role in the development of refractory periodontitis.[13] Smoking has a strong negative impact on regenerative therapy,

including osseous grafting, guided tissue regeneration, or a combination of this treatment.[11] The present report provides information on the prevalence of type of periodontal care provided by dentists from different places in India with special reference to SIP.

Materials and Methods

Total 800 dentists attending a national conference are invited to present data and information on SIP of their patients attending their clinics. Information on patient smoking habits, demographic, and exposure variables were collected with the help of a single, pre-validated questionnaire from the general dental practitioners employing a two-stage stratified sampling design. Dentists working in both rural and urban population were studied. Zone wise and gender wise distributions of dentists were done. Variables of the questionnaire include: Respondent's demographic and professional information, which includes: Age, gender, year in practice and professional status. Other variables include Quitting of smoking, counseling on disease complications, referral to periodontists, age, rural background, and low socioeconomic status, acquisition of knowledge, attitude of the dentists for the management of SIP and others.

Dentist's response to the survey was entered into the windows excel database and survey were analyzed in SPSS for windows. Descriptive statistics was used to analyze the responses to each item. Chi-square test was used for categorical variables and analysis of variance for continuous variables.

Results

Dentists working in both rural and urban population were studied. Zone wise and gender wise distributions of dentists were shown in Table 1.

The prevalence of SIP with ever smoking habit was displayed in Table 2, which shows clear predilection for men to be suffering from SIP.

Table 3 displays the distribution of SIP with the type of product used, a number of cigarettes, bidis, hookahs smoked a day, and there is significant correlation between smoking habit and incidence of SIP. In table no 4, it was also found that, There was no difference in recommendations either by resident dentists or by senior council approved dentists."

Recommendations advised by family dentists for controlling SIP like, quitting of smoking, counseling on disease complications, support of family members are shown in Table 4. The percentage of referrals to periodontists by the dentists is very low, which is about 14 percent only. which clearly indicates that general dental practitioners manage most of the cases without referring them to periodontists.

Important variables for SIP are: Increasing age, rural background and low socioeconomic status are shown in Table 5.

Table 1: Zone-wise distribution of study population of general dental practitioner categorized according to the gender and urban, rural distribution.

Different zones	Urban		Rural	
	Male	Female	Male	Female
South zone	45	55	51	49
North zone	47	53	53	47
East zone	49	51	56	44
West zone	43	57	54	46
Total	184	216	214	186

Table 2: Distribution of prevalence of SIP in men and women respectively from the four different zones with mean (%) ±SD.

Different zones	Men (%)	Mean (%) ±SD	Women (%)	Mean (%) ±SD
South zone				
Rural	40.5	40.5±5.5	5.5	5.5±0.5
Urban	20.0	20.0±3.5	1.05	1.05±0.05
North zone				
Rural	41.4	41.4±5.5	7.5	7.5±1.5
Urban	17.9	17.9±4.5	1.1	1.1±0.1
East zone				
Rural	26.3	26.3±3.5	1.6	1.6±0.5
Urban	19.2	19.2±3.5	0.6	0.6±0.06
West zone				
Rural	34.7	34.7±4.5	1.1	1.1±0.1
Urban	32.6	32.6±4.5	1.4	1.4±0.4
Mean total				
Rural	35.7	35.7±4.5	3.8	3.8±0.8
Urban	22.4	22.4±4.0	0.7	0.7±0.07
Total	58.1	58.1±4.25	4.5	4.5±0.5

SIP: Smoking-induced periodontitis, SD: Standard deviation

Table 6 shows, acquisition of knowledge and attitude of the dentists for SIP management. A significant section of respondents considered their professional training experience to contribute greatly to their knowledge of treatment and counseling for the management of SIP. Other sections stated that learning from journals, professional colleague and from continuing medical education (CME) activities do also contribute.

Attitudes toward patients with SIP as shown in Table 6 indicates that patients with SIP have great difficulty in changing their lifestyle than do other people. Most patients have compliance problem in maintenance of their oral hygiene.

Dentist's response to the survey was entered into the windows excel database and survey were analyzed in SPSS for windows descriptive statistics was used to analyze the responses to each item. Chi-square test was used for categorical variables and analysis of variance for continuous variables.

Discussion

Tobacco use, including smoking and non-smoking forms of tobacco, is common in India.[1] The reports of tobacco use, in different population groups shows its prevalence from about 15% to over 50% among men in India.[2] Global Youth Tobacco

Table 3: Distribution of SIP with the type of product used, number of cigarettes, bidis, hookahs smoked per day.

Types of smoking product	Rural (mean (%) ±SD)		Urban (mean (%) ±SD)		Total (mean (%) ±SD)
	Percentage of population using the product	Percentage affected by SIP	Percentage of population using the product	Percentage affected by SIP	Percentage affected by SIP
Cigarettes	12.5±2.5	11.5±1.5	47.05±4.05	45.0±5.0	56.5±6.5
Bidis	81.2±1.2	80.0±1.2	11.7±1.7	10.0±1.50	90.0±8.5
Hookah and others	6.3±0.3	6.2±1.2	0.8±0.08	0.8±0.08	7.1±0.75
Number of smoked per day					
Mean	15.0	91%	14.04	90.5%	90.75%

SIP: Smoking-induced periodontitis, SD: Standard deviation

Table 4: Recommendations advised by family dentists for controlling SIP.

Recommendations	Residents dentists n^1=308 (%) (38.5%)	Council approved dentist, n^2=492 (%) (61.5%)	All *N*=800 (%)	*P* values** For testing the significant difference between 2 groups
Quit smoking	298 (96.75)	482 (97.96)	780 (97.5)	χ^2=1.14, df=1, *P*>0.05
Maintainance of proper oral hygiene	280 (90.9)	400 (81.30)	680 (85)	χ^2=0.21, df=1, *P*>0.05
Lacking knowledge about the patients maintainance of oral hygiene	182 (59.09)	298 (60.56)	480 (60)	χ^2=0.172, df=1, *P*>0.05
Counselling for disease complications	270 (87.66)	420 (85.36)	690 (86.25)	χ^2=0.842, df=1, *P*>0.05
Family members supporting counselling	258 (83.76)	412 (83.73)	670 (83.75)	χ^2=0.0009, df=1, *P*>0.05
Referral to periodontists	42 (13.63)	70 (14.22)	112 (14)	χ^2=0.055, df=1, *P*>0.05

SIP: Smoking induced periodontitis

Table 5: Important variables for SIP with respect to age and socio economy status.

Other factors with smoking		
Variables	Percentage affected with SIP (urban) (%)	Percentage affected with SIP (rural) (%)
Age		
>35	65.5	70.4
<35	25.5	35.5
Socio economy status		
Poor (below the poverty line)	76.6	82.5
Average	55.6	58

SIP: Smoking induced periodontitis

Table 6: Attitudes of dentists to statements on SIP – the percentage of family dentist who responded "agree" (in percentage).

Statement	All *N*=800	Resident dentists *N*=308	Council recognized family dentists=492
Patients with SIP have more difficulties in changing their lifestyle than do other people	252	123	129
Most patients with SIP have low compliance in maintenance of oral hygiene compared to others	114	66	48
Not sure about their patients quitting habit	445	175	280
Reducing the frequency to dentists visit	522	255	267
Sources of knowledge received by the dentist during professional course	770	290	480
Sources of knowledge from journals	210	90	120
Sources from professional colleague	180	80	100
From CME activities	350	120	230

CME: Continuing medical education, SIP: Smoking induced periodontitis

Survey study was reported on an average is up to about 10% individuals are having ever smoking habit.[3] Smoking is one among the major environmental factor responsible for rapid periodontal destruction. During assessment of the effect of smoking habit and number of cigarettes smoked, on periodontal status by using community periodontal index of treatment needs; it was found to be harmful.[14] The potential biologic mechanism underlying the effects of tobacco smoking on periodontal status explained by the facts that, susceptibility to periodontal destruction is increased by smoking with decreased response to treatment.[7] In other studies, it was concluded that rapid periodontal destruction in young adult is because of the major environmental factor of cigarette smoking.[15] Strong associations between cigarette smoking and the risk of periodontitis were shown among older Thai adult in a cross-sectional study.[16] It has been concluded that the incidence of plaque and calculus deposits are higher among smokers.[17] Study on a sample of young adult Israelis for investigation of association smoking with periodontitis concluded that 7 out of 100 patients develop these signs.[18] Some of the proinflammatory cytokines and chemokines profile are found to be decreased in smokers.[19]

Here, the purpose of the study was to examine the sources of knowledge, attitudes, and practices of family dentists regarding the management of SIP in Indian population. Dentists working in both rural and urban population were studied. Zone wise and gender wise distributions of dentists were shown. Here, results showed a clear predilection for men to be suffering more from SIP. In rural India, aged individuals with low socioeconomic status with a habit of smoking are mostly affected by SIP. It also could be presumed that, there is a correlation between the distributions of SIP with the type of product used, the number of cigarettes, bidis, or hookahs smoked per day. There is also

significant correlation between smoking habit and incidence of SIP. This study recommended for management of SIP advised by family dentists by quitting smoking, counseling on disease complications, family members supporting counseling. The percentage for referral care to periodontists by the dentists is very discouraging. Other important variables for SIP are, increasing age, rural background and low socioeconomic status. Acquisition of knowledge and attitude of the dentists for the management of SIP is analyzed among greater section of respondents. It is observed that their professional training experience contributes greatly to their knowledge of treatment and their efficiency in counseling for the management of SIP. Other sections of respondents stated about their learning from journals, from professional colleague and from CME activities. Attitudes toward patients with SIP indicate that patients with SIP have great difficulty in changing their lifestyle than do other people. Most patients have compliance problem in maintenance of their oral hygiene.

Conclusion

These findings highlight the need for preventive strategies aimed at young individuals, many of whom take up smoking as a habit, early in life. There is a lack of clarity in getting patients information, which is a major cause of failure in instituting proper therapeutic majors. Dental public health communication efforts therefore, need to include and emphasize the role of smoking and in primary preventive efforts for maintenance of oral hygiene. The availability of specialized care is far below the level of expectation in India. The general dentists have the attitude to provide the specialized periodontal care. Implementation of strategies that will enhance the competencies and confidence of family dentists in management of SIP are important for achieving successful treatment of this problem in Indian population.

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