SHORT COMMUNICATION

Oral Health Among Tobacco-Chewers in an Urban Area of Karachi

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INTRODUCTION

Oral diseases like periodontal disease, dental disease and related oral mucosal lesions are major public health concerns worldwide although there has been an improvement in oral health but the problem still persists on a global scale.[1]

Numbers of diseases are linked with food habits, environmental and life-style factors. One of those is tobacco consumption which is considered as a primary cause of many oral diseases and adverse oral conditions. Tobacco is chewed, smoked, sucked and sniffed killer. Globally, tobacco product production is decrease in high income countries but constantly increasing in low income countries. Hence, "Tobacco is the single greatest cause of non-communicable disease and is likely to produce a world pandemic".[2]

Around 2500 chemical constituents are present in raw or processed tobacco. Causing carcinogenesis, depression, irritation, impaired oxygen transport, tumour and toxicity the research on polycyclic hydrocarbons in tobacco chew, adds to the evidence that it contains 28 carcinogens that cause oral cancer and pancreatic cancer.[3-4] Besides oral cancer, tobacco chewing also leads to oral soft tissue lesions like oral sub-mucous fibrosis, leukoplakia, lichenoid lesions mainly on buccal mucosa or tongue.[3-4]

This study was design to evaluate the oral health status among the tobacco chewers, its harmful effects in oral cavity, primarily on periodontal structures in an urban population of Karachi.

METHODS

This cross-sectional study was done among the apparently healthy subjects reporting to the Out Patient Department (OPD) of Oral Medicine Diagnosis and Radiology (OMDR) in the Karachi Dock Labour Board Building (KDLB), Kemari Karachi.

A purposive sampling of 120 individuals coming to this Dental College cum tertiary care hospital was selected for this Study. The subjects were divided into 2 groups: tobacco chewers (n=60) and non-tobacco chewers (n=60) in age groups from 25 to 55 years. This age limit was selected as the root formation is expected to get completed by 25 years and below 55 years.

Excluded patients were smokers in control and chewer groups, subjects of age less than 25 years and older than 55 years, diabetics, subjects using antibiotics, Non-steroidal anti-inflammatory drugs and steroids for any systemic disease, edentulous patients, patients with HIV/AIDS.

The materials used were mouth mirror; community periodontal index treatment needs (CPITN) probe, William's periodontal probe, gauze piece, tweezers, cotton holder, kidney tray, autoclave, dental chair, OPG-X-ray machine (Helsinki Finland), X-ray viewer, Digital Calliper.

A structured questionnaire based case history format of data collection was used. A detailed clinical oral examination was performed for the assessment of periodontal status that is to measure the pocket or probing depth. [PD] [<4mm, 4-5 mm or =6 mm or > 6 mm], the bleeding on probing [BOP], no. of teeth present in the mouth, tooth mobility (grade I, II, III), clinically visible caries, calculus in all the 120 subjects along with a radiographic examination for studying the total marginal bone-loss in a special study sample of 60 subjects (30 tobacco chewers and 30 non-tobacco chewers).

Informed Consent was taken after imparting sufficient information; if the patient desired to be a part of the study then his consent (signature or thumb impression) was recorded in the informed consent form. Statistical analysis was done by applying SYSTAT version 10 by Cranes Software. Chi-square test at 5% and 1% level of significance were applied to see the association and correlation between two or more than two variables. =Z' test of difference between two sample means at 5% and 1% level of significance is applied to compare quantitative variables in the study.

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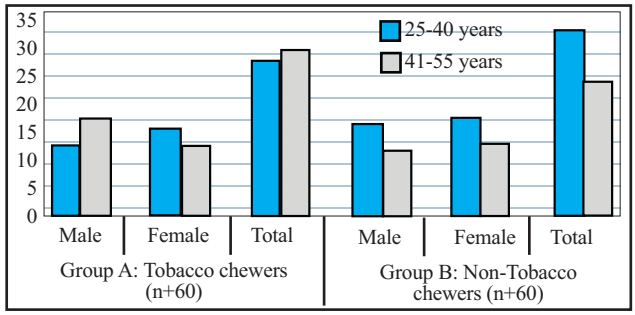
RESULTS

A total of 120 subjects participated in the study. This study was carried out in Out Patient Department (OPD) in the Department of Oral Medicine Diagnosis and Radiology (OMDR) in the KDLB. The samples were selected by Purposive random sampling method as the duration of the study was 3 months that is from mid February 2010 to mid April 2010.

All the 120 subjects responded to the questionnaire out of which 61were males and 59 were females. In tobacco chewer group, 31 were males while 29 were females. In non-tobacco chewer group, 29 were males while 31 were females. In tobacco chewer group, in age limit from 25-40 years, there were 13 males and 16 were females, in age limit from 41-55 years, 18 were males and 13 were females while in non-tobacco group, in age limit from 25-40 years, 17 were males and 18 were females, in age limit from 41-55 years, 12 were males and 13 were females (table1).

Table 1: Age and sex wise distribution of the patients under study

Age in years	Group A: Tobacco chewers (n=60)			Group B: Non- Tobacco chewers (n=60)		
	Male	Female	Total	Male	Female	Total
25-40	13	16	29	17	18	35
41-55	18	13	31	12	13	25
Total	31	29	60	29	31	60



(Table 2) presents DMFT when compared with Tobacco and Non-tobacco chewers (i.e. $p<0.01$). And there was no significant difference between mean values of parameters such as D and F when compared with Tobacco and Non-tobacco chewers (i.e. $p>0.05$). This revealed that Tobacco chewers had more missing teeth than non-tobacco chewers.

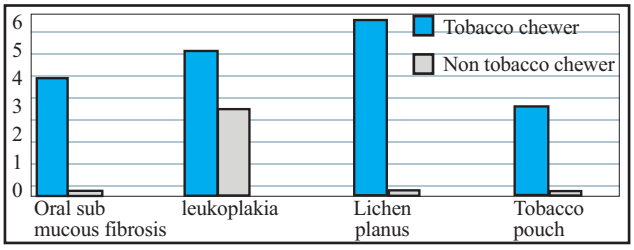
Table 2: Shows the comparison of mean values of parameters DMF and DMFT in tobacco chewers and non tobacco chewers group

Tobacco chewer group (n= 60) Mean ± SD	Non-tobacco chewers group (n= 60) Mean ± SD	Z test value	"p" values	Results
1.34 ± 1.27	1.44 ± 1.40	0.24	p>0.05	N.S Highly Significant
4.09 ± 3.39	2.27 ± 0.75	3.37	p<0.01	N.S Highly Significant
1.14 ± 1.08	1.19 ± 0.97	0.54	p>0.05	N.S Highly Significant
5.80 ± 4.53	3.12 ± 3.01	3.82	p<0.01	N.S Highly Significant

(Table 3) By applying Chi-square test for Oral Mucosal Lesion (OML) we compared status of Tobacco and Non-tobacco chewers and it was found $p<0.05$.

Table 3: Distribution of oral mucosal lesions in tobacco chewer and non tobacco chewer group

Oral mucosal lesion status	Tobacco chewer (n=60)	Non-tobacco chewer (n=60)	Total (n=120)
Oral sub mucous fibrosis	4	0	4
leukoplakia	5	3	8
Lichen planus	6	0	6
Tobacco pouch	3	0	3
Total	18	3	21



(Table 4) Comparison of mean values of parameters Bleeding on probing, Calculus, Shallow pocket and Deep pocket in Tobacco and Non-tobacco chewer group this revealed that Tobacco chewers had more calculus compared to non-tobacco chewers.

Table 4: Comparison of mean values of parameters Bleeding on probing, Calculus, Shallow pocket and Deep pocket in Tobacco and Non-tobacco chewer group

	Tobacco chewer (n=60)	Non-tobacco chewer (n=60)	"Z" value	"p" value	Result
Calculus	57 mm	32 mm	5.42	p<0.01	Highly significant
Shallow pocket	31 mm	11 mm	11.23	p<0.01	Highly significant
Deep pocket	10 mm	2 mm	8.98	p<0.01	Highly significant
Bleeding on probing	60	50	0.41	p>0.05	Not significant

DISCUSSION

This study was done to investigate the periodontal conditions and oral symptoms in tobacco chewers and non-tobacco chewers. The present study revealed that there is a significant difference between TC (tobacco chewers) and NTC (non-tobacco chewers) with respect to oral hygiene status but there were no significant differences between TC and NTC with respect to oral hygiene measures adopted. This means that TC has poor oral hygiene status than NTC. TC plays an important role in oral hygiene deterioration. Similar observations were found by other studies, in which effect of chewing tobacco was observed on periodontal tissues and oral hygiene status.[5]

The prevalence of OMLs (oral mucosal lesions) in TC in this study was 30 percent compared to 5 percent in NTC which is similar to 36 percent from an earlier study done in UK resident Bangladeshi community by Ray Croucher et al,[6] who studied oral health of Bangladeshi women who use tobacco with paan.[7-9]

In the present study the incidence of periodontal pocket was significantly higher in TC group compared with NTC. Similar results were found by Shivaswamy[10] who compared periodontal health status in pan chewers with or without use of tobacco. According to Fischer et al,[11] it is reported that smokeless tobacco user has twice more severe active periodontal disease compared to non-tobacco user. Synders et al,[12] reported that use of tobacco products exacerbates periodontal disease. While Girish Parmar et al,[13] stated that there is deterioration of periodontal conditions with periodontal pocket formation in TC compared to NTC.

In the present study it is seen that TC has more tooth loss status compared to NTC which is similar to a previous study done by Neely et al,[14] who studied the effects of betel nut and tobacco in periodontal disease.

The limitations in study need to be recognized. The sample was small (n=60+60) which reflected a short time period to conduct this study. Due to the exploratory nature of the study, the duplication of oral examination was not possible. Due to lack of time and funding the radiographic cross-checking examination was limited to a sample of 30+30.

Differences in disease risks due to smokeless tobacco used in different parts globally reflect differences in toxicity of products that are available in market. Smokeless tobacco is being consumed worldwide. It is sold either by large manufacturers or in locally produced in cottage industries. All nicotine delivery products need to be regulated, smokeless tobacco products to be regulated by controlling its constituents. Upper limit must be set for NNN and NNK nitrosamines. The combined concentration of NNN and NNK inn smokeless tobacco must be 2ug/gm of dry tobacco wt. Regulators must fully inform the consumers that like cigarettes, smokeless tobacco products meeting safety standards are still hazardous for health and they should publicize test results that influence user behaviours. Expiry dates and refrigeration norms must be strictly followed.

CONCLUSION

This study concludes that tobacco chewing causes deleterious effects on oral tissues, teeth and enhances the risk of periodontal disease.

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