Original Article

Prevalence based epigrammatic study of oral cancer and other mucosal disorders in elderly patients visiting dental institution of Northern India

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ABSTRACT

Objective: This report provides the descriptive information about the oral health among the elderly population. The objective is to assess the association of age, medical status, recent use of dental services, habits and dentures with that of oral cancer, and other mucosal disorders. **Materials and Methods:** Data from the interviews and clinical examination of 285 persons aged above 60 years were obtained. Patients were divided into three groups of 75 patients each with age group of 60-65 years, 66-70 years, and 71 years above, respectively. Patients were examined and questioned regarding the oral health complaints and the presence of cancer and other mucosal disorders. **Results:** There are no statistically significant differentiates between the three groups in terms of oral health complaint, medical status. The patients in all the three groups gave the history of consumption of betel quid/alcohol/smoking. About 22.1% patients in Group A, 18.9% in Group B, and 37.9% in Group C had associated mucosal lesion like oral cancer, growth, pigmentation, red lesion, ulcer, and white lesions. Association between deleterious habits and oral mucosal lesions was seen in 12, 15, and 16 patients in Groups A, B, and C, respectively. **Conclusion:** The oral cancer and oral mucosal lesions were associated with oral habits and the use of faulty dentures. Age had minimal influence but coexistence of multiple conditions might further complicate the oral health.

Key words: Geriatric dental patients, oral cancer, oral health, oral mucosal lesions

INTRODUCTION

The integrity of oral mucosa is essential for the maintenance of oral and general health. It is especially important in elderly, who are known to have age related decline in immune function. Reports, based primarily on clinical appearance, have suggested that oral cancer and other mucosal alterations are frequently seen in elderly population.[1] This is a result of age related decline of immune system function.[2] Prevalence ratios have been reported for specific oral lesions such as oral cancer, denture related lesions, leukoplakia, pigmented lesions, oral submucous fibrosis, lichen planus, geographic tongue, and leukoedema.[3] In addition, associations have been described between oral cancer and other precancerous mucosal lesions and betel nut chewing, tobacco use, alcohol use, defective dentures, and age.[4] Nevertheless, relative strength of associations has not been measured in a sample with an adequate number of subjects older than 60 years to permit a reliable measure of association of oral cancer and other mucosal lesions with age, dentures, and medical status. This study aimed to find out the association of age, medical status, the recent use of dental services, habits, dentures with that of oral cancer, and related mucosal disorders in three elderly age groups.

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MATERIALS AND METHODS

The study was conducted among patients attending department of oral medicine and radiology, Shree Bankey Bihari Dental College and Research Centre, Ghaziabad,

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India. The study population consisted of 285 patients which ranged in age from 60 to 80 years. Subjects were assigned to one of the three age groups. Group A: 60-65 years, Group B: 66-70 years, Group C: 71 years, and above. The sample was drawn using a stratified random sampling procedure to obtain equal representation for gender and three age groups. All the 285 subjects were interviewed and offered an oral examination. Individuals who refused to participate and those who were too ill or unable to communicate were excluded from the study.

The subjects were interviewed in our department by two trained interviewers. Structured questions addressed a wide range of issues pertinent to oral health which focused on the responses relating to education, income, occupation, oral health related complaints, self-assessed general health, and the use of dentures and history of habit. A detailed medical history was taken to assess the medical status of patient. Questions relating to the presence of habits like chewing tobacco, smoking or consuming alcohol were asked to patients.

Examinations were performed by a dentist trained to recognize and diagnose oral cancer and other mucosal lesions. Examinations were performed in a setting that included fully reclinable dental chair, diagnostic instruments, and both direct and indirect light. A standardized intra and extraoral examination was performed. The following oral mucosal areas were examined sequentially in detail. Lips, buccal mucosa and vestibular mucosa, hard and soft palate, tongue, floor of mouth, salivary gland orifices, edentulous alveolar ridges, attached gingiva, and oropharynx. Only clinically overt mucosal alterations were recorded. No microbiological or cytological alterations were performed routinely. Dentures were assessed for stability, tooth wear, and structural integrity. During analysis, denture stomatitis, denture related hyperplasia, and angular cheilitis were combined into one variable because usually they are closely associated with denture use.

Data were entered into computer and frequency tables were generated using SPSS software using version 17 (SPSS South Asia Pvt Ltd, Bangalore, India). Chi-square test was used to determine the association of age with that of medical status, the use of dentures and oral cancer and related lesions.

The test was considered

- Significant if $P < 0.005$
- Highly significant if $P < 0.01$
- Very highly significant if $P < 0.001$.

RESULTS

Systematic compilation of results and statistical analysis have confirmed the mean age for Group A, Group B, and Group C as 62.7, 66.4, and 73.2 years, respectively. The Group A consisted of 58 (61.1%) males and 37 (38.9%) females, Group B with 56 (58.9%) males and 39 (41.1%) females and Group C with 53 (55.7%) males and 42 (44.3%) females. There were similar proportions of male and females in the three groups and no statistically significant difference between the three groups [Table 1]. Patients were questioned regarding the oral health complaint. A total of 45 (47.3%), 36 (41.3%), and 34 (38.7%) of the patients in Group A, Group B, and Group C gave one or more oral health complaints, respectively. There was no statistically significant difference between the three groups in terms of the presence of the oral health complaint [Table 1]. A total of 34 patients in Group A (35.8%), 28 patients in Group B (29.4%), and 29 patients in Group C (30.1%) were medically compromised and had history of diabetes mellitus/cardiac problems/respiratory problems/renal problems/gastrointestinal disorder/drug allergy. There was no statistically significant difference between the three groups in terms of medical status [Table 1].

The patients in our study reported of the recent use of dental services. A total of 42 (44.3%) patients in Group A,

Table 1: Comparison of association of age, oral health complaint, medical status, use of dentures, and oral mucosal disorders among the three groups

	Group A (60-65 years) (*N*=95) (%)	Group B (66-70 years) (*N*=95) (%)	Group C (71 years and above) (*N*=95) (%)	x^2	*P*
Gender					
Males	58 (61.1)	56 (58.9)	53 (55.7)	0.41	0.84 NS
Females	37 (38.9)	39 (41.1)	42 (44.3)		
Oral health complaint	45 (47.3)	36 (37.9)	34 (35.8)	1.08	0.68 NS
Medically compromised patients	34 (35.8)	28 (29.4)	29 (30.1)	0.74	0.80 NS
Recent use of dental services	42 (44.3)	31 (32.6)	32 (33.7)	5.28	0.64 NS
Presence of habits	18 (18.9)	21 (22.1)	22 (23.1)	6.35	0.54 NS
Presence of only natural teeth	42 (44.3)	36 (37.9)	34 (35.8)	2.14	0.42 NS
Presence of both natural teeth and denture	17 (17.9)	16 (16.9)	31 (32.6)	6.74	0.03 Sig
Presence of denture only	31 (32.6)	32 (33.7)	28 (29.4)	12.76	0.12 NS
Associated mucosal lesions	21 (22.1)	18 (18.9)	36 (37.9)	14.08	0.48 NS

NS: Not Significant, Sig: Significant

31 (32.6%) patients in Group B, and 32 (33.7%) patients in Group C, respectively reported of the recent use of dental services. There was no statistically significant difference between the three groups when the recent use of dental services was considered [Table 1].

The patients in all the three groups gave the history of consumption of betel quid/betel quid and alcohol/betel quid and smoking and alcohol. There was no statistically significant difference between the three groups in terms of habit recorded by the patients [Table 1]. About 42 subjects (44.3%) in Group A, 36 (37.9%) in Group B, and 34 (35.8%) in Group C had the presence of only natural teeth. Similarly, 31 subjects (32.6%) in Group A, 32 subjects (33.7%) in Group B, and 28 (29.4%) of subjects in Group C used only dentures. There was no statistically significant difference between the three groups in terms of the presence of only natural teeth and only dentures. However, about 17 subjects (17.9%) in Group A, 16 (16.9%) in Group B, and 31 (32.6%) in Group C used dentures and had natural teeth as well. But, there was statistically significant difference between the three groups [Table 1].

About 21 patients (22.1%) in Group A, 18 (18.9%) in Group B, and 36 (37.9%) in Group C had associated mucosal lesions like cancer of oral cavity/growth/pigmentation/red, lesion/ulcer/white lesion. However, there was no statistically significant difference between the three groups when mucosal lesions associated between the three age groups were considered [Table 2].

Habits

About 18 patients in Group A, 21 patients in Group B, and 22 patients in Group C had one or other habits. There were associations of mucosal lesions with habits (viz, tobacco smoking, areca nut chewing, and alcohol). A total of 12 patients in Group A, 15 patients in Group B, and 16 patients in Group C had associated lesions like carcinoma of oral cavity, red and white lesions like leukoplakia, lichen planus, or pigmentations [Table 3].

Dentures

Out of the dentures wearers, 10 patients in Group A, 13 patients in group B, and 12 patients in Group C had either of mucosal lesions. Denture stomatitis followed by angular cheilitis was most prevalent in all the three groups.

Defective dentures

However, the association of defective dentures with that of oral mucosal lesions was not much appreciable. Two patients each in Group A and Group B and four patients in Group C who had defective dentures had mucosal lesions.

Table 2: Distribution of mucosal lesions in three groups

Mucosal lesion	Group A (%)	Group B (%)	Group C (%)	Total
White lesion	12 (12.8)	9 (9.8)	21 (22.1)	42
Pigmentation	4 (4.3)	3 (3.3)	5 (5.4)	12
Growth	1 (1.1)	1 (1.1)	2 (2.2)	4
Ulcer	2 (2.2)	2 (2.2)	4 (4.3)	8
Red lesion	1 (1.1)	3 (3.3)	2 (2.2)	6
Oral cancer	1 (1.1)	0 (0)	2 (2.2)	3
Total	21 (22.1)	18 (18.9)	36 (37.9)	75

Table 3: Distribution of habits in three groups

Habit	Group A (%)	Group B (%)	Group C (%)	Total
Tobacco smoking	8 (8.7)	11 (11.7)	12 (12.8)	31
Tobacco, areca nut chewing	4 (4.3)	5 (5.4)	7 (7.4)	16
Alcohol	6 (6.4)	5 (5.4)	3 (3.2)	14
Total	18 (18.9)	21 (22.1)	22 (23.1)	61

DISCUSSION

The number of individuals over 60 years old are steadily increasing in almost all the countries, as a result of the improvement in living conditions and medical advances in therapeutics.[5,6] During the past decades, multiple epidemiological studies have attempted to evaluate the oral health, mainly in aged people living in protected environments and having limited access to dental services, and also in elderly living independently in the societies.[7,8]

Oral health is an important part of the quality of life of any individual. Oral cancer and other mucosal lesions can cause discomfort or pain, interfering with mastication, swallowing and speech, while symptoms such as halitosis, xerostomia, or oral dysesthesia can interfere with the daily social activities.[9] When patients were questioned regarding the presence of oral health complaint, it was not surprising that about 36-48% of the subjects experienced oral health problems. It is a well-known fact that ageing causes changes to oral mucosal epithelium, such as thinning and reduction if collagen synthesis, decreasing the ability to epithelial regeneration, and subsequently the resistance of the organism to any disease of microbial or traumatic in nature. MacEntec MI and associates found oral health complaints in 35% of elderly people which was comparable to our study.[1]

Although the lifespan of the elderly population is increasing, successful ageing is jeopardized by multiple systemic conditions which become more prevalent at elderly age causing impaired systemic health and adversely affecting the quality of life. In our study, about 30-40% of the elderly subjects were medically compromised which was comparatively very less compared to study conducted by Triantos where 90% subjects were medically compromised.[4]

Subjects in our study reported of the recent use of dental services. Nowadays, elderly people are healthier and demand more dental care services. This trend is shown by decreasing the rates of edentulism and the increased rate of dental care utilization by elderly people. In the study conducted by MacEntec *et al*., 60% of individual reported the recent use of dental services.[1]

About half the proportion of oral cancer and related mucosal lesions encountered in the present study was related to habits. Associations have been reported between oral cancer and habits.[1] The proportion of oral cancer and related mucosal lesions associated with habits were found to be almost the same as compared to the above studies.

A significant proportion of oral lesions encountered in our study were also related to the use of dentures. Denture stomatitis followed angular cheilitis was most prevalent in all the groups. This finding was consistent with the study conducted by Triantos. We did not find much association of defective dentures with that of oral cancer and mucosal lesions in the three groups. Sholapurkar in 2010 also showed the presence of one or more mucosal lesions in (41.2%) of the institutionalized population which was in agreement with our study results. Mucosal lesions like tobacco-related lesions (leukoplakia, smoker's palate, oral submucous fibrosis, and oral malignancies) were more prevalent among men than among women. Denture stomatitis, herpes labialis, and angular cheilitis occurred more frequently in the female population.[10]

CONCLUSION

We conclude that age alone has very minimal influence on the occurrence of mucosal lesions. The co-existence of multiple medical conditions might further complicate oral health. Oral cancer and precancerous mucosal lesions among elderly people are frequent and commonly related to the habits and the use of dentures whereas the qualities of dentures contributes less than the use of denture to the presence of intra oral mucosal lesion.

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