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Assessment Of The Association Between Oral Health And Hygiene Practices And Oral Cancer- A Hospital–Based Case–Control Study

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ABSTRACT:
Background:Oral lesions and pathologies are increasingly affecting significant patient population due to inadequate dietary habits and adaptation of western culture (changing lifestyle conditions). Hence; the present study was undertake for assessing the association between oral health and hygiene practices and oral cancer.
Materials & methods:A total of 200 patients with confirmed histopathologic diagnosis of oral squamous cell carcinoma and 200 healthy controls were enrolled. Complete demographic details of all the patients were recorded separately. A questionnaire was made and detailed data in relation to subject's oral hygiene practices was recorded. Mouth mirror and probe was used for assessing the oral health status. Periodontal index and plaque index were used for evaluating the periodontal status.
Results:Presence of gum bleeding and periodontal pathologies weresignificant risk factor for occurrence of OSCC. Seventy six patients of the OSCC group and 134 patients of the control group did mouth wash daily. Thirty four patients of the OSCC group and 147 patients of the control group had complete dental check up every six months.
Conclusion:A strong association exists between oral health and oral hygiene practices and occurrence of oral cancer.
KEY WORDS: Oral hygiene, oral health, Oral squamous cell carcinoma

1. INTRODUCTION

Adequate oral health refers to state of body being free from pain, oral lesions (benign and malignant), oral infectious pathology, oral developmental pathologies, periodontal pathologies, tooth decay, tooth loss, and other pathologic lesions that restrict a subject's capacity in performing different oral and para-oral functions as well as psychosocial well-being. Oral lesions and pathologies are increasingly affecting significant patient population

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due to inadequate dietary habits and adaptation of western culture (changing lifestyle conditions). Malignancies in the mucous membrane lining of the oral cavity are epidermoid squamous cell carcinomas (ESCC) in about 90% of cases. Most of these tumors are found in surface areas and could be diagnosed at early stage, but those lesions located in deeper levels usually manifest themselves and are subsequently diagnosed after having grown and reached advanced stages.[1- 3]Alcohol and smoking, and particularly the combination of both, is considered the main etiological risk factors for the development of this malignancy. Other predisposing etiological factors include infection by the human papillomavirus and the presence of chronic oral inflammation. These two conditions play an important role in patients who have never been smokers or drinkers.It is believed that apart from established etiological factors like tobacco, alcohol, and areca nut, other factors like chronic mucosal trauma, poor nutrition, and poor oral hygiene (POH) may contribute to oral carcinogenesis.[4-6]Hence; the present study was undertake for assessing the association between oral health and hygiene practices and oral cancer.

2. MATERIALS & METHODS

The present study was conducted for assessing the association between oral health and hygiene practices and oral cancer.A total of 200 patients with confirmed histopathologic diagnosis of oral squamous cell carcinoma and 200 healthy controls were enrolled. Complete demographic details of all the patients were recorded separately. A questionnaire was made and detailed data in relation to subject's oral hygiene practices was recorded. Mouth mirror and probe was used for assessing the oral health status. Periodontal index and plaque index were used for evaluating the periodontal status. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. Chi- square test was used for evaluation of level of significance.

3. RESULTS

In the present study, a total of 200 patients with confirmed histopathologic diagnosis of oral squamous cell carcinoma and 200 healthy controls were enrolled. Mean age of patients of OSCC group and control group was 53.4 years and 51.7 years respectively. There were 138 males and 62 females in OSCC group and 123 males and 77 females in control group.

Table 1 shows association of oral health and OSCC. Among OSCC group and control group, gum bleeding was present in 139 patients and 89 subjects respectively. More than 4 carious teeth were present in 118 patients of OSCC group and 104 subjects of control group. Periodontal pathologies were present in 129 patients of OSCC group and 83 patients of the control group. While analysing statistically, it was seen that presence of gum bleeding and periodontal pathologies were a significant risk factor for occurrence of OSCC. Table 2 shows the association of oral hygiene practices and OSCC. Seventy six patients of the OSCC group and 134 patients of the control group did mouth wash daily. Thirty four patients of the OSCC group and 147 patients of the control group had complete dental check up every six months.

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Graph 1: Demographic data

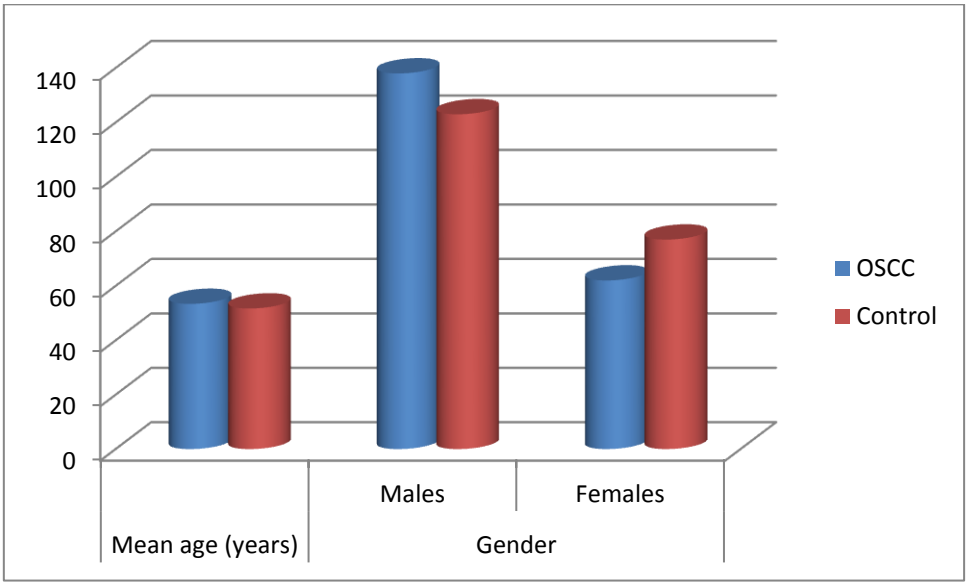

Table 1
Association of oral health and OSCC

Oral health		OSCC group	Control group	p- value
Gum bleeding	Present	139	89	0.00*
	Absent	61	111	
Carious teeth	More than 4	118	104	0.23
	Less than 4	82	96	
Periodontal pathologies	Present	129	83	0.00*
	Absent	71	117	
Removable dental prosthesis	Present	83	68	0.18
	Absent	117	132	

*: Significant

Table 2
Association of oral hygiene practices and OSCC

Oral hygiene practices		OSCC group	Control group	p- value
Tooth brushing	Regularly	149	183	0.01*
	Not regularly	51	17	
Mouth wash daily	Yes	76	134	0.00*
	Present	124	66	
Dental floss use	Yes	69	88	0.98
	No	131	112	
Dental check up every six months	Yes	34	147	0.00*
	No	166	53	

*: Significant

4. DISCUSSION

Oral health is often regarded as a significant reflection of a person's general health and quality of life. Damage or pathologic destruction of oral health also deteriorates the quality of life. As defined by World Health Organization (WHO), adequate oral health is considered as "being free of chronic mouth and facial pain, oral and throat cancer, oral infection and sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay, tooth loss and other diseases and disorders that affect the mouth and oral cavity and those that limit an individual's ability in biting, chewing, smiling, speaking and psychosocial wellbeing." In the last couple of decades, health care workers have observed a significant rise in the incidence of health issuesdue to oral pathologies in major developing and underdeveloped countries. Adequate knowledge of oral health is crucial for health-related practices.[7- 9] Oral pathologic lesions are associated with behaviour, and their prevalence has decreased with concomitant increase in oral hygiene practices. Also, limiting sugar consumption is massivelycorrelated with a reduction in incidence of dental caries. Good oral health practice consists of the continuous implementation of two sets of behavior: utilization of dental services and self-care habits.[10, 11]

In the present study, a total of 200 patients with confirmed histopathologic diagnosis of oral squamous cell carcinoma and 200 healthy controls were enrolled. Mean age of patients of OSCC group and control group was 53.4 years and 51.7 years respectively. There were 138 males and 62 females in OSCC group and 123 males and 77 females in control group.Among OSCC group and control group, gum bleeding was present in 139 patients and 89 subjects respectively. More than 4 carious teeth were present in 118 patients of OSCC group and 104 subjects of control group. Periodontal pathologies were present in 129 patients of OSCC group and 83 patients of the control group. While analysing statistically, it was seen that presence of gum bleeding and periodontal pathologies were a significant risk factor for occurrence of OSCC.In a previous study conducted by Jung YS et al, authors assessed the correlation of oral health status with the occurrence of mucositis in patients with head and neck cancer during radiotherapy. They observed that subjects with radiotherapy induced mucositis had significant decreased oral health-related quality of life than those who did not.[11]

In the present study, Seventy six patients of the OSCC group and 134 patients of the control group did mouth wash daily. Thirty four patients of the OSCC group and 147 patients of the control group had complete dental check up every six months.In a previous study conducted by Marques LA et al, authors analysed the association between oral health practices and occurrence of oral cancer. They evaluated a total of three hundred nine subjects with confirmed diagnosis of squamous cell carcinoma of oro-pharyngeal region and four hundred sixty eight healthy subjects. They recorded the complete data in relation to subject's smoking and alcohol consumption habits and their hygiene practices. They reported non-significant association of complete dental prosthesis with oral carcinoma. However; they observed a significant correlation between regular gum bleeding with occurrence of oral cancer. Also,

there were more chances of occurrence of cancer among subjects who never attended a dental clinic. Daily mouthwash use showed a stronger association to pharynx than mouth cancer. Gum bleeding, no dental care, and daily mouthwash use were factors associated with oral cancer regardless of tobacco and alcohol consumption.[12]Hashim D et al, in a previous study, analysed the association of five oral hygiene indicators with incident head and neck carcinomas (HNCs). Eight thousand nine hundred twenty five cases of HNCs and twelve thousand five hundred twenty seven controls from thirteen studies participating in the International Head and Neck Cancer Epidemiology Consortium, comparable data on good oral hygiene indicators were analysed. They concluded that good oral hygiene might reduce the risk of occurrence of HNC.[13]

5. CONCLUSION

From the above results, the authors concluded that a strong association exists between oral health and oral hygiene practices and occurrence of oral cancer.

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