



Original Article

Epidemiological study of oral squamous cell carcinoma: A hospital based study in Dhaka city

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Abstract

Objective: To find out the prevalence of oral squamous cell carcinoma among the tertiary and specialized level hospital in Dhaka city

Materials and methods: A cross sectional study was carried out in the department of Oral and Maxillofacial surgery of DDCH, NICRH, BSMMU and ShSMCH from January 2009 to July 2010. A total of 324 patients of histopathologically proven cases of OSCC were selected as a sample size. Both primary and secondary data were collected for the study. The prevalence of OSCC was calculated by dividing the OSCC patient by total number of patients multiplying 100.

Results: The total prevalence of OSCC 3.55% among the 4 tertiary and specialized level hospitals in Dhaka city.

Conclusion: The prevalence of OSCC among tertiary and specialized level hospitals of Dhaka city was 3.55%. The rate is quite high. The prevalence of risk factors includes betel quid, smokeless tobacco, smoking and poor oral hygiene was also high. The majority of the patients were present in advanced stages of the diseases.

Key words: OSCC-oral squamous cell carcinoma, DDCH-dhaka dental college & hospital, BSMMU-bangabandhu sheikh mujib medical university, ShSMCH-shahid suhrawardi medical college & hospital, NICRH-national institute of cancer research & hospital, BCPS-bangladesh college of physicians & surgeons, BQ-betel quid.

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Introduction

World is currently experiencing of non-communicable diseases, which are also known as modern epidemic. Among these modern epidemic cancer is the second commonest cause of mortality in developed countries. In developing countries, cancer is among the tenth commonest cause of mortality and oral cancer is one of the most common cancer in developing countries¹. Over 90% of malignant neoplasm of the oral cavity are

squamous cell carcinoma arising from oral epithelium than². High proportion of cases among male, may be due to high prevalence of tobacco consumption in both chewing and smoking than female^{3,4}. Most of the subjects belonged to lower socioeconomic scale⁵. The incidence of oral cancer shows considerable geographical, cultural and ethnic variation. This variation ranges from a low incidence of 1-2% of all malignant tumour in much of Japan to over 40% in Sri Lanka and

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approaching 50% in India⁶. No yet available about any statistics in Bangladesh. Recent studies suggest that betel quid (BQ)/smokeless tobacco chewing produces reactive oxygen species (ROS) that is detrimental to oral mucosa and can be directly involve in tumour initiation process by inducing mutation of gene or by attaching the salivary protein and oral mucosa, leading to structural changes in the oral mucosa⁷. Current study is an effort to conduct situation analysis and to unveil the factors of the oral cancer. This will help to find out whether there are any other factors or characteristics of the population that have the potential to play a role in the development of oral cancer.

Material and Methods

A cross sectional study was conducted in the oral & maxillofacial surgery department of DDCH, BSMMU, ShSMCH & NICRH from January 2009-june 2010. All patient reported in the oral & maxillofacial surgery department were included as a study population. All histologically proven cases of OSCC were included as a sample size over the study period. Both primary and secondary data

were collected for the study. Primary data were collected by face to face interview of the patient and the secondary data were collected from the hospital record register. The following variables were considered in all patients, viz-age & sex, occupation, socio-economic condition, habits, site & type of lesion, grading and staging of the diseases. A total of 324 diagnosed cases of OSCC were approached over the study period and finally proceed for analysis. The hospital prevalence of OSCC were calculated by dividing number of OSCC patient by total patient turnover multiplying 100.

Calculation:

OSCC patient=324

Total number of patient= 9120.

Prevalence= $324 / 9120 \times 100 = 3.55\%$.

Both individual institution as well as a accumulated prevalence were calculated.

Results:

Table 1: The prevalence of OSCC among patient attended in the oral and maxillofacial surgery department of different level Hospitals in Dhaka city:

Category of patient reported	Oral & maxillofacial surgery Dept. of the institutions				
	DDCH	BSMMU	ShSMCH	NICRH	Total
Total patient	3840	3600	840	840	9120
OSCC patient	60	48	36	180	324
% of OSCC patient	1.56	1.33	4.28	21.43	3.55

Table 1-shows

The total (accumulated) prevalence of OSCC patient among different hospital were 3.55%. The hospital prevalence of individual institution of OSCC patient were calculated to be 2.43% (180) in NICRH, 1.56% (60) in DDCH, 1.33% (48) in BSMMU and 4.28% (36) in ShSMCH.

The mean age of the patient was 52.2+₋10.6 years, among them 52.4% were male and 47.6% were female.

Regarding risk factors/habits 78% were BQ chewer, 74% were smokeless tobacco user and 65% were smoker.

Regarding site of involvement buccal mucosa was the most common site (53.4%).

Regarding staging and grading most of the patient were present as an advance stage of the diseases (55.6%).

Discussion:

OSCC is the sixth most common cancer in the world and is largely preventable⁸. It accounts for approximately 4% of all cancer and 2% of all cancer death world wide⁹, and 90% of all head-neck cancer¹⁰.

In this study the total prevalence of OSCC was 3.55% among the 4 tertiary and specialized level hospital in Dhaka city.

In the Indian subcontinent OSCC is the commonest malignant neoplasm, accounting for 20-30% of all cancer, globally tobacco consumption in all its various form is the commonest aetiological factors for the subsequent development of oral cancer¹¹.

In this study regarding risk factors 78% were BQ chewer, 74% were smokeless tobacco users and 65% were smoker.

In the developing countries the use of tobacco and/or the areca nut (betel) produces chronic potentially malignant lesion from which the majority of oral cancer arises¹². Tobacco and alcohol are the two most important known risk factors for the development of oral cancer¹³. Cofactors of OSCC includes dietary factors, immunodeficiency, viral infections like Human papilloma virus (16/18)¹⁴ and low socio-economic condition¹⁵. From the relative risk factors, it has been estimated that 75% of all cancers are preventable, in the remaining 25% of the patient who are not exposed to this substances the cause of the tumor remains unknown¹⁴.

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The mean age of the patient was 52±10 years with male preponderance 52.4%, which are in accordance with the previous studies^{16,17} and study by Khandker h¹⁸. Many epidemiological studies conducted in western countries and provided strong evidence about prevalence and possible risk factors. To combat disease knowledge about precise dynamic and existing situation is indispensable particularly in resource limited country setting. Few epidemiological studies have been carried out in the Indian subcontinent and none is available in Bangladesh. However study findings are still valuable; since facilities in Dhaka share the catchment of the whole country and due to availability of relatively cheaper service than private organization. In this situation the selection of study place is also significant.

Conclusion:

The prevalence of OSCC in this study was 3.55%, the rate is quite high. The present study revealed prevalence of OSCC and risk factors including habit and socio demographic characteristic of the patient. This information about oral cancer would certainly help our clinicians as well as authorities to build up necessities of public awareness for the prevention of oral cancer in our country.

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