

# Association of Risk Factors and Clinical Features with Oral Cancer Outcomes in Assam

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**Abstract-** Oral disease is any dangerous neoplasm which is found on the lip, floor of the mouth, cheek lining and gingiva, sense of taste or in the tongue. Serious alcoholism, use of tobacco like cigarettes, smokeless tobacco, betel nut chewing and human papilloma virus (HPV) is the most widely recognized hazard factors for oral cancer. It is hypothesized that the risk factors play an important role in the disease progression and a better analysis of the risk factors associated with oral cancer, which is a rising incidence in Assam. A hospital based cross - sectional study on oral cancer was done in North East Cancer Hospital and Research Institute and Regional Dental College and Hospital. This study indicates that the poor oral hygiene, smoking tobacco and consumption of alcohol are the most significant risk factors for oral cancer in Assam.

**Keywords –** Oral cancer, HPV, serious alcoholism, smokeless tobacco

## I. INTRODUCTION

Oral cancers are the most common reason for death in adults (Dikshit et al. 2012). Oral disease is any dangerous neoplasm which is found on the lip, floor of the mouth, cheek lining and gingiva, sense of taste or in the tongue (Elango et al. 2012). Oral malignancy is among the main three sorts of diseases in India. Serious alcoholism, use of tobacco like cigarettes, smokeless tobacco, betel nut chewing and human papilloma virus(HPV) are the most widely recognized hazard factors for oral cancer (Anil K et al.2013). Oral malignant growth may likewise happen because of poor dental consideration and poor diet (Wen-JiunLin et al. 2017) .The occurrence of oral disease is most astounding in India, south and Southeast Asian nations. In India, 90 - 95% of the oral tumors are squamous cell carcinoma (Sharma et al. 2014,2015). The worldwide organization for research on malignant growth has anticipated that India's frequency of disease will increment from 1 million of every 2012 to more than 1.7 million out of 2035. This demonstrates the demise rate as a result of disease will likewise increment from 680000 to 1-2 million in the equivalent period (Bray et al. 2008). A case control think about from India shows that oral disease is interrelated with low salary. Low social financial class is interrelated with components like sustenance, human services, living condition and hazard practices which add to the advancement of oral cancer ( Krishna Rao et al.2000-2012). In some low-salary and center pay nations, including India, the vast majority of the populace does not approach an efficient and all around managed disease care framework. An analysis of disease regularly prompts high close to home wellbeing uses. Such uses can push whole families beneath the neediness line and may compromise social stability (Gupta et al. 2014). No noteworthy progression in the treatment of oral malignant growth has been found as of late, however the present medicines improve the personal satisfaction of oral disease patients yet the general survival rate of 5 years has not improved in the previous decades. According to WHO, mortality due to oral cancer is highest among other cancers in 2008, an estimated 1.13 million deaths occurred due to cancers with large number of cases from India ( Parkin DM et al. 2000).Oral cancer can be diagnosed by oral potentially malignant disorders (OPMD), a well-established pre-cancer stage ,that can be seen in the oral cavity (Napier SS et al. 2008).Oral potentially malignant disorders are early clinical features that are thought to undergo histopathological and molecular changes that leads to invasive oral cancer (Lingen MW et al. 2011). OPMD generally includes leukoplakia, erythroplakia and oral sub-mucous fibrosis. According to Cancer data in India, from both population-based and hospital-based cancer registries, showed the highest incidence of esophageal cancer generally occur in Assam in the north east of the country, followed by Bangalore and Bombay (NCRP, 1984–1989). Etiological studies in India have quantified the risks factors of esophageal cancer associated with betel nut chewing and alcohol and tobacco consumption in Bombay and Bangalore ( DJ Jussawalla et al.1971,1981) but no such investigation has been made in Assam where certain ingredients and methods of preparation of the betel nut quid differ from those common in other parts of India.

## II. HYPOTHESIS

The two principle factors which impact most diseases are hereditary and epigenetic factors. Development of oral or head and neck squamous cell carcinoma (HNSCC) and minor salivary organ carcinomas is affected by both these

elements specifically tobacco, betel quid, alcohol, diet and nutrients and oral cleanliness etc. This think about hence looked to evaluate the relationship between oral cleanliness propensities, dietary components, chewing/smoking tobacco, and alcohol drinking on the danger of the event of malignancies of the oral pit in an Indian setting. We additionally assessed the degree to which chewing tobacco and consumption of alcohol changes the relationship between oral cleanliness propensities and oral malignant growth, theorizing that raised danger of the illness is autonomously connected with biting of tobacco, chewing of betel nut and consumption of alcohol. Lifestyle, environmental factors and tobacco use have been identified as risk factors for oral cancer, and remains the most important and preventable cause of this disease. Therefore, it is hypothesized that the risk factors play an important role in the disease progression and a better analysis of the risk factors associated with oral cancer, which is a rising incidence in Assam is the aim of the study.

### III. EXPERIMENT AND RESULT

In our study a total no. of 54 cases having oral cancer from North East Cancer Hospital and Research Institute and Regional Dental College and Hospital were collected with all the data and a statistical analysis has been done which shows the following results.

Table 1 Table showing Oral hygiene frequency in patients

ORAL HYGIENE	FREQUENCY %
GOOD	1.85(1/54)
MEDIUM	37.03(20/54)
POOR	61.11(33/54)

Table 1 shows that the cases that have been included in the study about 60.11% cases have the poor oral hygiene condition, 37.03% cases have medium and only 1.85% cases were shown to have a good oral hygiene condition.

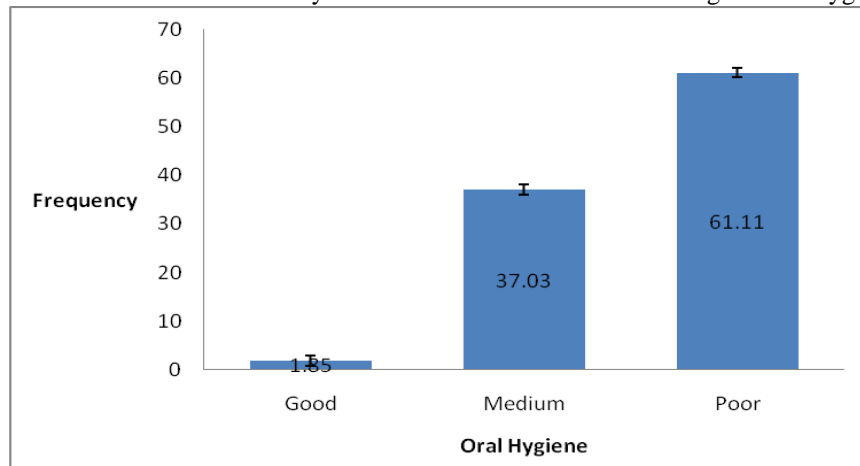


Fig: 1 Graph showing oral hygiene frequency of oral cancer patients

In the above distribution it is seen that most of the patients were having the poor oral hygiene condition in compared to medium and good oral hygiene condition.

Table-2 Biochemical profile of oral cancer patients

BIOCHEMICAL PROFILE	MALE(n=43)	FEMALE (n=11)	p VALUE
HB	12.2 ±2.17	10.92 ±1.78	0.07
BILIRUBIN	0.66 ±0.34	0.61 ±0.25	0.65
PT	11.92 ±1.80	13.27 ±1.89	0.03

BLOOD UREA	28.17 ±8.89	41.6 ±38.90	0.03
SERUM CREATININE	0.95 ±0.27	0.74 ±0.18	0.01

Table 2 shows out of 54 cases collected, all the cases were included in the study. The overall male female ratio was found out to be 43:11 and so the male gender was predominant (79%).oral cancer, a frequently occurred in the young adults where mean age was found to be 52 years. Among the laboratory characteristics, Hb mean value was 11.98 with a total bilirubin value of 0.62 mg/dl in the oral cancer cases. The mean Pt, blood urea and serum creatinine, levels of oral cancer was 12.27, 30 and 0.92mg/dl respectively. The mean values of PT, blood urea and creatinine shows significant association between males and females (p<0.05).

Table-3 Risk estimates of alcohol consumption habits

ALCOHOL CHARACTERISTICS	CA/TOTAL	MALE p VALUE	OR	CA/TOTAL	FEMALE p VALUE	OR
NON DRINKERS	12/43	Ref	Ref	9/11	Ref	Ref
DRINKERS	31/43	<0.05	0.38	3/11	0.18	2.90
FREQUENCY PER DAY						
1-4	29/43	<0.05	28.41	1/11	0.99	1
5-10	1/43	0.99	1	1/11	0.99	1
11-19	1/43	Ref	Ref	1/11	Ref	Ref
DURATION(YRS)						
<10	1/43	<0.05	0.08	1/11	0.99	1
10-20	18/43	0.35	1.49	1/11	0.99	1
20+	12/43	Ref	Ref	1/11	Ref	Ref
AGE(START)						
<20	1/43	<0.05	0.03	0/11	0.28	0
20-29	2/43	<0.05	0.07	1/11	0.65	0.51
30+	28/43	Ref	Ref	2/11	Ref	Ref

Table 3 shows that among the drinkers and non-drinkers male and female both show the elevated risk factors (p<0.05) and (OR=2.90).The association between drinkers and nondrinkers in case of males and females was found to be statistically significant (p <0.05). Alcohol drinking as a risk factor was found to be statistically significant in males more than females (p<0.05). The cases who used to take alcohol 1-4 times per day were found to be statistically significant (p <0.05) and is a significant risk factor (OR=28.41) in males (OR=1) in females. Alcohol consumption is also found to be a risk factor in those patients who consumed 5-10 times per day in both males (OR=1) and females (OR=1). Alcohol consumption is also found as a significant risk factor (p<0.05) in the patients who consumed alcohol more than 10 years both in males (OR=1.49) and females (OR=1). The duration of the drinking habits and the age at which the habit was first taken up shows (OR=0.07) for males who had been drank for more than 20 years (p<0.05).

Table 4: Risk estimates of tobacco smoking habits of both male and female patients.

SMOKING CHARACTERISTICS	CA/TOTAL	MALE p VALUE	OR	CA/TOTAL	FEMALE p VALUE	OR
NON SMOKER	3/43	<0.05	0.07	9/11	0.18	2.90
SMOKERS	40/43	Ref	Ref	3/11	Ref	Ref
FREQUENCY PER DAY						
1-4	24/43	0.37	1.40	1/11	0.99	1
5-10	17/43	<0.05	8.35	1/11	0.99	1
11-19	0/43	Ref	Ref	1/11	Ref	Ref
DURATION(YRS)						
<10	1/43	<0.05	0.03	0/11	0.52	0

10-20	27/43	0.13	1.79	1/11	0.65	0.51
20+	15/43	Ref	Ref	2/11	Ref	Ref
AGE(START)						
<20	1/43	0.99	1	0/11	0.52	0
20-29	1/43	<0.05	0.02	1/11	0.65	0.51
30+	41/43	Ref	Ref	2/11	Ref	Ref

Table 4 shows the tobacco smoking (smokers or non-smokers) characteristics of both male and female patients, including its p-values and Odds ratios. Among smokers and non-smokers the females show the highest risk factors (OR=2.90). Both male and female shows the statistical significant value ( $p < 0.05$ ). Smoking as a risk factors was found to be statistically significant in males more than females ( $p < 0.05$ ). The cases who used to smoked 5-10 times per day were found to be statistically significant ( $p < 0.05$ ) and is a significant risk factors (OR=8.35) in males. The duration of smoking habits and the age at which the habit was first taken up shows (OR=0.02) for males who had been smoked for more than 20 years ( $p < 0.05$ ).

#### IV. CONCLUSION

Based on the above study it can be concluded that few risk factors are the reason in the advancement of oral cancer, of which the most widely recognized and common are tobacco smoking , alcohol consumption and poor oral hygiene. By and by, numerous patients are determined to have oral cancer regardless of going without known way of life or environmental risk factors where elements like genetic susceptibility and oral cleanliness are accepted to assume the causative role. This review likewise gives an idea on burden, prevalence in India, causes and symptoms of oral malignant growth. The lifetime hazard for mortality from cancer in India for both males and females is 61%. As per insights, the number of death in 2012 because of oral malignant growth is 36463 in males and 15361 in females (Gupta et al. 2014). Preventive measures must be taken to decrease the rate and mortality of oral cancer and for better survival. Due to the high population in India, disease control exercises ought to be organized to make most extreme use from the restricted resources. Individuals under 40 years who are routine cigarette smokers, alcohol consumer, and betel quid chewers must experience oral mucosa screening normally with the goal that oral disease can be recognized as right on time as possible. Consequently, it is significant for the general population and the clinicians to be completely aware of the risk factors for oral cancer and it is judicious for dental specialists to look cautiously for early indications of oral disease, while routine examination of the oral cavity particularly in patients with history of known risk factors.

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