



Association of cutaneous malignancy with different common intoxicants: A hospital based study

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Abstract

Background: The incidence of skin cancer has been increasing dramatically during the past two decades. Various studies have shown significant and insignificant association of cutaneous malignancy with different common intoxicants like alcohol, tobacco/smoking and betel nuts etc. But to our knowledge no such studies in the North-East region of India has been extensively carried out.

Methods: This study was conducted at Gauhati Medical College & Hospital, Guwahati, Assam to understand the association of Cutaneous Malignancy with Different Common Intoxicants exposed patients. Being a hospital based cross-sectional descriptive study, a total 150 patients of newly diagnosed cases of cutaneous malignancy were procured from the Out Patient Department of Dermatology & STD of the institute during the period of November, 2010 to October, 2013.

Results: (1) Distribution of patient's personal habits of taking various intoxicants:

The present study history of taking various intoxicants are betel nuts 42 (28%), smoking 15(10%), chewing tobacco 12(8%), alcohol 5(3.33%), smoking and alcohol 2(3%), tobacco and alcohol 5(3.33%), betel nut and alcohol 5(3.33%), smoking, tobacco and alcohol 2(1.33%), tobacco and alcohol; smoking, betel nut and alcohol 2(1.33%), tobacco, betel nut and alcohol 5(3.33%) and smoking, tobacco, betel nut and alcohol 3(2%). However 36(24%) patients did not have the habit of taking any intoxicants. (2) Distribution of use of tobacco/smoking by the patients: The present study tobacco/smoking habits are chewing tobacco 12(8%), smoking Beedi 10(6.67%) and smoking cigarette 6(4%), chewing tobacco & smoking cigarette 16(10.67%), chewing tobacco & smoking Beedi 15(10%) and 91(60.67%) patients did not have the habit of taking tobacco/smoking. (3) Distribution of duration of taking alcohol by the patients: In the present study duration of taking alcohol are more than four years 18(12%), 3-4 years 14(9.33%) and 1-2 years 10 (6.67%). However, 108(72%) patients did not have the habit of taking alcohol.

Conclusion: (1) The personal habits of taking intoxicants of patients such as betel nut, smoking, chewing tobacco have significant association of cutaneous malignancy. (2) Duration of consuming alcohol significantly affect the prevalence of cutaneous malignancy.

Keywords: cutaneous, malignancy, intoxicants

Introduction

Tumours of the skin are by far one of the most common of all tumours affecting humans in all age groups from neonate to elderly of both sexes. Of the skin tumours, non melanoma skin cancers {principally, squamous cell carcinoma (SCC) and basal cell carcinoma (BCC)}, are the most common malignant neoplasms in the world [1]. Chronic intoxicant intake impacts skin directly, through organ dysfunction or by modifying pre-existing cancers. However, cutaneous malignancy afflicting persons taking intoxicants like alcohol figure in a few studies only. Researchers found that every 10-gram increase in alcohol consumed each day was associated with a greater risk of BCC and SCC which are the two main types of non-melanoma skin cancers (NMSC). Several studies has shown that smoking also boosts your risk of SCC by 52 percent. It has shown that smokers' increased risk can be attributed to tobacco's harmful effect on the immune system, since people with damaged or suppressed immune systems are much more likely to develop cutaneous malignancy.

This thesis is based on study conducted at Gauhati Medical College & Hospital, Guwahati, Assam. This set of population was studied with a view to understand the Association of Cutaneous Malignancy with Different Common Intoxicants - A Hospital Based Study at Gauhati Medical College & Hospital, Guwahati, Assam. Being a descriptive study, the data were procured from the Out Patient Department of Dermatology & STD, Gauhati Medical College & Hospital, and Guwahati, Assam.

Research Design

To fulfil the objectives of the study, the hospital based cross-sectional descriptive study was used for collection and study of data.

Study Setting

The present study has been undertaken in the Out Patient Department of Dermatology & STD, Gauhati Medical College

Materials and Methods

& Hospital, and Guwahati, Assam.

Study Period

The study period was three years commencing from November, 2010 to October, 2013.

Study Population

The study population comprise of 150 numbers of newly diagnosed cases of cutaneous malignancy attending the Department of Dermatology & STD of Gauhati Medical College & Hospital, Guwahati, Assam during the period of November, 2010 to October, 2013. Before undergoing the study clearance from institutional ethical committee was obtained. Analysis of data was done in the year 2014.-15

The Sample

Sample size of 150 number of newly diagnosed cutaneous malignancy patients were taken into the study during the period of November, 2010 to October, 2013.

Selection of cases

The 150 cutaneous malignancy cases were selected into the study among the patients of all age groups attending the Department of Dermatology & STD of Gauhati Medical College & Hospital, Guwahati, Assam during the period of November, 2010 to October, 2013. Initially, patients were selected purely on clinical ground and then diagnosis was confirmed by biopsy.

1. Inclusion criteria

Newly diagnosed cases of cutaneous malignancy of all age group coming from November, 2010 to October, 2013.

2. Exclusion criteria

Old diagnosed cases of cutaneous malignancy that are under treatment.

Protocol

The proforma was prepared based on universal standard protocols for evaluation of cutaneous malignancy which contains separate history, examination and investigation parts. Then diagnosis was made based on biopsy report of the lesions.

Methods

Details of the patient

Details of the patients were recorded in the manner in order of age, sex, religion, caste, occupation, address, hospital number and registration number for identification and documentation. When patients were first examined a detailed history was taken and thorough clinical examination was done. Then they underwent a battery of investigations to confirm diagnosis. For socioeconomic status of the patients Kupuswamy modified criteria was used. All the patient’s history, clinical examination, investigation findings, and diagnosis data were recorded in a pre-designed and pre-tested proforma. As immunohistochemistry facility was not available in the study centre diagnosis was made on the basis of histopathology only. Staging of the cutaneous malignancy was not done. Cancers of oral mucosa, lip, anal canal, conjunctiva and vulva are also included into the study. Cases belonging to cutaneous malignant melanoma are called melanomas skin cancers and

others like squamous cell carcinoma (SCC) and basal cell carcinoma (BCC) are called non-melanoma skin cancers.

Results and Observations

1. Distribution of patients’ personal habit of taking various intoxicants N= 150

Under this category of inquiry, attempt was made to assess in detail the patients’ various habits like smoking, chewing tobacco, betel nut, drinking alcohol, etc. They were asked about the duration of taking these intoxicants, the amount of their consumption and whether the habit still prevailed at the time of the study. These findings are presented in the following table.

Table 1: Distribution of patient’s personal habits of taking various intoxicants

Intoxicant use	Total patients	
	No. s	%
Betel nut	42	28
Smoking	15	10
Chewing tobacco	12	8
Alcohol	5	3.33
Smoking and tobacco	3	2
Smoking and betel nut	5	3.33
Smoking and alcohol	3	2
Tobacco and betel nut	5	3.33
Tobacco and alcohol	5	3.33
Betel nut and alcohol	5	3.33
Smoking, tobacco and betel nut	2	1.33
Smoking, tobacco and alcohol	2	1.33
Smoking, betel nut and alcohol	2	1.33
Tobacco, betel nut and alcohol	5	3.33
Smoking, tobacco, betel nut and alcohol	3	2
No habit of taking these	36	24
Total	150	100

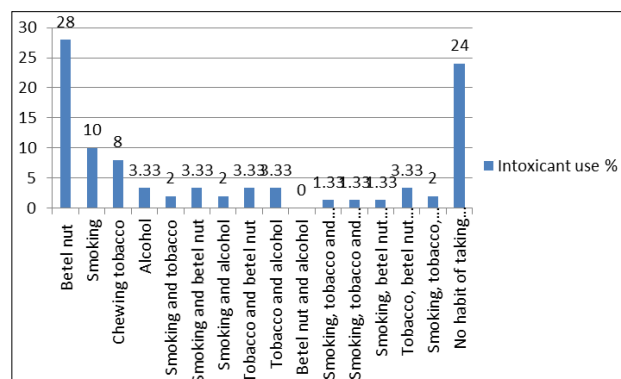


Fig 1: Bar diagram showing distribution of patient’s personal habits of taking various intoxicants

The above table-1 shows that 42 (28%) patients took betel nuts, 15 (10%) patients smoked and 12 (8%) patients were in the habit of chewing tobacco. Among them, 5 (3.33%) patients took alcohol; 2 (3%) patients smoked and took alcohol; 5 (3.33%) patients took tobacco and alcohol; 5(3.33%) patients took betel nut and alcohol; 2 (1.33%) patients smoked, took tobacco and alcohol; 2 (1.33%) patients smoked, took betel nut and alcohol, 5(3.33%) patients took tobacco, betel nut and alcohol and 3(2%) patients smoked, took tobacco, betel nut and alcohol. However 36 (24%)

patients did not have habit of taking any intoxicants. Statistical analysis from the table-1 reveals that the effect of personal habits of taking intoxicants on patients due to betel nut, smoking, chewing tobacco were found to be significant and the other effect were found to be less significant.

2. Distribution of use of tobacco/smoking by the patients N=150

The patients were examined for their habit of chewing tobacco/ smoking.

Table 2: Distribution of use of tobacco/ smoking by the patients

Intoxicants used (tobacco/smoking)	Total patients	
	No. s	%
Cigarette	6	4
Beedi	10	6.67
Chewing tobacco	12	8
Cigarette and chewing tobacco	16	10.67
Bidi and tobacco	15	10
No habit of taking tobacco/smoking	91	60.67
Total	150	100

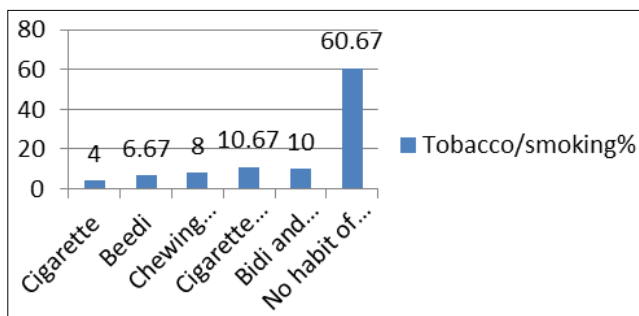


Fig 2: Bar diagram showing distribution of use of tobacco /smoking by the patients

The above table-2 shows that 12 (8%) patients chewed tobacco while 10 (6.67%) patients smoked Beedi and 6 (4%) patients smoked cigarette. A total of 16 (10.67%) patients chewed tobacco & smoked cigarette and 15 (10%) patients chewed tobacco & smoked Beedi. However, 91 (60.67%) patients did not have habit of taking tobacco/smoking.

Statistical analysis from the table-2 shows that the nature of intoxicant used by the patients is significantly effective. {Chi square (X²)=6.82, degree of freedom = 1, p = 0.0021}. From this we can conclude that different types of tobacco are equally responsible for the prevalence of cutaneous malignancy.

3. Distribution of duration of taking alcohol by the patients N=150

Table 3: Distribution of duration of taking alcohol by the patients

Duration of taking alcohol (in years)	Total	
	No. s	%
1 – 2	10	6.67
3 – 4	14	9.33
> 4	18	12
No habit of taking alcohol	108	72
Total	150	100

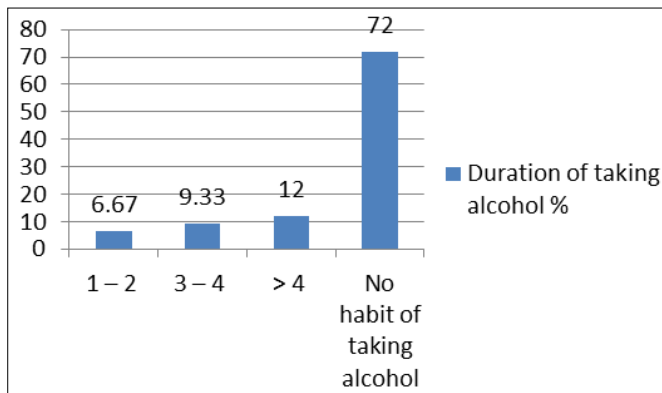


Fig 3: Bar diagram showing distribution of duration of taking alcohol by patients

The above table-3 shows that 18 (12%) patients had been taking alcohol for more than four years, 14 (9.33%) patients took for 3-4 years and 10 (6.67%) took for 1-2 years. However, 108 (72%) patients did not have the habit of taking alcohol.

Statistical analysis shown in table-3 reveals that duration of consuming alcohol significantly affect the prevalence of cutaneous malignancy (chi square X² = 29.04, p=0.000132).

Discussion

1. Distribution of patient’s personal habits of taking various intoxicants

The present study result shoes that 42 (28%) patients took betel nuts, 15 (10%) patients smoked and 12 (8%) percent were in the habit of chewing tobacco. Among them 5 (3.33%) patients took alcohol; 2 (3%) patients took smoking and alcohol; 5 (3.33%) patients took tobacco and alcohol; 5(3.33%) patients took betel nut and alcohol; 2 (1.33%) patients took smoking, tobacco and alcohol; 2 (1.33%) patients took smoking, betel nut and alcohol, 5(3.33%) patients took tobacco, betel nut and alcohol and 3(2%) patients took smoking, tobacco, betel nut and alcohol. However 36 (24%) patients did not have the habit of taking any intoxicants. Statistical analysis reveals that the effect of personal habits of taking intoxicants on patients due to betel nut, smoking, chewing tobacco were found to be significant and the other effect were found to be less significant.

2. Distribution of use of tobacco/smoking by the patients

The present study shows that 12 (8%) patients chewed tobacco while 10 (6.67%) patients smoked Beedi and 6 (4%) patients smoked cigarette. A total of 16 (10.67%) patient chewed tobacco & smoke cigarette and 15 (10%) patients chewed tobacco & smoked Beedi. However, 91 (60.67%) patients did not have the habit of taking tobacco/smoking. Statistical analysis shows that the nature of intoxicant used by the patients is significantly effective. {Chi square (X²)= 6.82, degree of freedom = 1, p = 0.0021}. From this we can conclude that different types of tobacco are equally responsible for the prevalence of cutaneous malignancy. In 2004, Preiman A, Bird G, Metelitsa AI, *et al.* [2] reported that smokers are 3.3 times at increased risk of developing squamous cell carcinoma (SCC) of the skin compared to non-smokers. Risk of cutaneous SCC increases with the number of

packs smoked daily and the duration of the smoking habit. There has been no clear association between smoking and basal cell carcinoma (BCC), as well as, melanoma. It has been suggested that when compared to non-smokers, melanoma patients who are smokers are more likely to have metastases on initial presentation; have lower disease-free survival rates after diagnosis; are more likely to have visceral metastases; and are more likely to die from the melanoma than non-smokers.

In 2004, it was reported in Nagomi-Obradovic L.^[3] That people who smoke are more likely to develop squamous cell skin cancer. Smoking is not a risk factor for basal cell cancer. In 2005, Chen K, Craig JC, Shumack S, *et al.*^[4] reported that people who smoke are more likely to develop squamous cell skin cancer. Smoking is not a risk factor for basal cell cancer. Petti (2009)^[5] revised investigations about prevalence and/or incidence of oral SCC and concluded that ¼ of cases are attributable to smoking, between 7 to 19% to alcohol consumption and 10 to 15% to micronutrient deficiency. In 2012, Jo Leonardi-Bee, Thomas Ellison *et al.*^[6] reported that smoking increases the risk of cutaneous squamous cell carcinoma; however, smoking does not appear to modify the risk of basal cell carcinoma.

In 2015, Vaidhehi Narayan Nayak *et al.*,^[7] reported that in their study population 93 (64.1%) cases gave history of Gutka chewing, smoking Beedi, and cigarette.

Thus findings of our studies are consistent with most of these international studies though there are disparities with some. In the present study, most of patients did not give proper history of quantity and frequency of tobacco/smoking taken in the past. So, description and analysis of quantity and frequency could not be made.

3. Distribution of duration of taking alcohol by the patients

In the present study 18 (12%) patients took alcohol for more than four years, 14 (9.33%) patients took for 3-4 years and 10 (6.67%) took for 1-2 years. However, 108 (72%) patients did not have the habit of taking alcohol. Statistical analysis reveals that duration of consuming alcohol significantly affect the prevalence of cutaneous malignancy (chi square $X^2 = 29.04$, $p=0.000132$).

In 2001, Schwartz SM, Doddy DR. *et al.*^[8] reported that risk of oral SCC is more in chronic alcoholics. In 2001, Adeyemi BF, Olusanya AA, Lawoyin^[9] conducted a study to find our relationship among oral squamous cell carcinoma and history of exposure to alcohol and tobacco. It reported that only 26% of patients had a positive history of exposure to tobacco, alcohol, or both; of this number, 20.3% used tobacco, while 18.8% consumed alcohol and 13% used both^[10]. Petti (2009)^[5] revised investigations about prevalence and/or incidence of oral SCC and concluded that ¼ of cases are attributable to smoking, between 7 to 19% to alcohol consumption and 10 to 15% to micronutrient deficiency. In 2015, Vaidhehi Narayan Nayak *et al.*,^[7] reported that in their study population 93 (64.1%) cases had history of Gutka chewing, smoking Beedi, and cigarette. Thus, our study results are consistent with these international studies. In the present study, most of patients did not give proper history of quantity and frequency of alcohol taken in the past. So, description and analysis of quantity and

frequency could not be made.

Conclusions

A. Factors with significant risk for development of cutaneous malignancy are -

1) Tobacco/smoking: The present study shows that 12 (8%) patients chewed tobacco while 10 (6.67%) patients smoked Beedi and 6 (4%) patients smoked cigarette. A total of 16 (10.67%) patient chewed tobacco & smoke cigarette and 15 (10%) patients chewed tobacco & smoked Beedi. However, 91 (60.67%) patients did not have the habit of taking tobacco/smoking. Statistical analysis shows that the nature of intoxicant used by the patients is significantly effective. {Chi square (X^2)= 6.82, degree of freedom = 1, $p = 0.0021$ }. From this we can conclude that different types of tobacco are equally responsible for the prevalence of cutaneous malignancy.

Recommendations

1. The clinical manifestations of cutaneous malignancy range from total absence of any symptoms in subjects with premalignant conditions to formation of swelling, ulcer, bleeding, pigmentation, certain skin changes, pain and itching etc. Differentiating cutaneous malignancy from other causes with similar features and from other cutaneous conditions is important for prognosis and treatment. Evaluation of patients suspected of cutaneous malignancy in a timely fashion is also critical, as a delay in diagnosis can have a negative impact on the disease course.

Health education of the society should form an important aspect of the health care so that they could learn certain do's and don'ts related to different diseases like cutaneous malignancy specially in persons taking intoxications for long duration and inculcate these in their behavioral patterns through constant practice so as to prevent the occurrence of diseases or reduce the effects of illness. The common symptoms of cutaneous malignancy which are similar to common diseases should be included in the health education programme so that it can be detected early. Environmental, occupational and life style factors which are risk for development of cutaneous malignancy should be included into the health education programmes so that the disease can be prevented.

2. Moreover, some screening tests should be held periodically by the health agencies to detect the disease early, especially in persons taking intoxicants for long duration who are high risk for development of cutaneous malignancy. Health agencies should be encouraged to organize periodic camps, health mela for screening of the disease.
3. Preventive maintenance is wiser and less expensive than crisis management. So, promoting awareness about the concept of environmental, occupational and life style risk factors for development of cutaneous malignancy and its common symptoms and to involve community in the process of their mitigation, there is need to conduct awareness campaign programmes in the community level.
4. The study was a descriptive study. So, any conclusions

drawn will have to be guarded and will have to confirm with further trials in India.

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