Original Research Paper

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Risk Factors of Upper Aerodigestive Tract Malignancies

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KEYWORDS: Upper Aerodigestive Tract Malignancies, Risk factors

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ABSTRACT

Head and neck cancer ranks the sixth most common cancer worldwide, thus making head and neck cancer a major health problem. This cross sectional study of fifty patients, presenting with features of upper aerodigestive tract malignancies attending the department of ENT, Government Medical College, Thrissur during a period of one year from June 2010 were studied to assess the prevalence of risk factors. Usage of tobacco and alcohol, the two risk factors that act synergistically was found to be very high in our study group. Pan chewing which is also common was associated with oral cavity malignancies. 70-90 % of patients with head and neck malignancies were found to be smokers, alcoholic and pan chewers. An initiative on the part of an individual to stop smoking and alcohol intake and on the part of government to educate the public on the ill effects of smoking and alcohol intake will go a long way to reduce the incidence of malignancies

Introduction

Head and neck cancer ranks as the sixth most common cancer worldwide, thus making head and neck cancer a major health problem. While the term "head and neck cancer" refers to tumors of myriad sites of origin and histologic types, over 90 percent of these are squamous carcinomas arising from the epithelium of the upper aerodigestive tract (oral cavity, oropharynx, nasopharynx, hypopharynx and larynx). Head and neck cancer is a heterogeneous group of cancers, with usually a poor prognosis in patients [1]. In the United States alone, approximately 28,000 men and 12,000 women are diagnosed with HNSCC

each year, 3.2% of all newly diagnosed cancers; the disease also accounts for 2.1% of cancer-related deaths [2]. Overall 57.5% of global head and neck cancers occur in Asia, especially in India accounting for 30% of all cancers [3,4].

According to U.S. data from the National Cancer Data Base, this condition corresponds to 4% of all head and neck tumors and 7% of all malignancies of the upper aerodigestive tract [5].

A risk factor is anything that increases a person's chance of developing cancer. Although risk factors often influence the development of cancer, most do not directly cause cancer. Some people with several risk factors never develop cancer, while others with no known risk factors do.

The most commonly implicated risk factors overall have historically been smoking tobacco and alcohol ingestion, betel nut chewing, severe gastro-oesophageal reflux, poor dental/oral hygiene, tertiary syphilis, lichen planus. Additional risk factors are being identified, including some strains of the human papilloma virus (HPV).

Aim of Study

Aim of this study is to assess the prevalence of risk factors in our patients with upper aerodigestive tract malignancies.

Materials and Methods:

This is a cross sectional study of fifty previously untreated patients , presenting with features of upper aerodigestive tract malignancies attending the department of ENT, Government Medical College, Thrissur during a period of one year from June 2010. A detailed history was taken from the patient and or a reliable relative. This included a detailed evaluation of risk factors. Then physical examination was done, which included a full otorhinolaryngological examination to identify and assess the primary in the upper aerodigestive tract. After the necessary investigations, these patients were subjected to upper aerodigestive tract rigid endoscopy for proper assessment and biopsy of the primary.

Observation and results:

This study included total of 50 patients, with 45 males and 5 females. Age range was from 24 years to 84 years. Male: female ratio was 9:1. Mean age was 60.02 years and median age was 60 years. Maximum patients were in the age group of 51 to 60 years (38%) followed by 61 to 70 years of age group (34%). Age and sex distributions are shown in Table 1.

Table No. 1. Age and Sex Distribution of Patients

Sl. No	Age Group	Number	Percent		
		Male	Female	Total	
1	1-10	0	0	0	0
2	11-20	0	0	0	0
3	21-30	0	1	1	2
4	31-40	1	1	2	4
5	41-50	4	0	4	8
6	51-60	17	2	19	38
7	61-70	16	1	17	34
8	71-80	6	0	6	12
9	81-90	1	0	1	2
10	91-100	0	0	0	0
Total	**45**	**5**	**50**	**100**	

Six major sites were involved in our study. Maximum numbers of cases were of carcinoma hypopharynx, 20 cases (40%), followed by carcinoma oropharynx, 14 cases (28%) and the remaining were supraglottic, nasopharynx, oral cavity and glottic malignancy respectively.

The male: female ratio was 9:1 in the carcinoma hypopharynx group. In the case of oropharynx, supraglottic and glottic malignancy, all were males. It was 3:1 in the case of carcinoma nasopharynx. Only in the carcinoma oral cavity patients females were predominating with male: female ratio of 1:2 as shown in Table 2.

Sl.No	Type of Malignancy	Number	Percent		
		Male	Female	Total	
1	Oral Cavity	1	2	3	6
2	Oropharynx	14	0	14	28
3	Hypopharynx	18	2	20	40
4	Supraglottic	8	0	8	16
5	Glottic	1	0	1	2
6	Nasopharynx	3	1	4	8
	Total	**45**	**5**	**50**	**100**

Regarding the age of patients in each group (Table 3 and Figure 3), youngest patient was suffering from nasopharyngeal carcinoma, (24

year old female) and this was the only patient in the age the age group 21 to 30. In the 31 to 40 age group we had 2 patients, one suffering from carcinoma nasopharynx and one from carcinoma hypopharynx. In 41 to 50 age group, there were total 4 patients one each belonging to carcinoma oropharynx, hypopharynx, supraglottis and glottis. In the 51 to 60 age group, 9 patients had hypopharyngeal malignancy and 6 had oropharyngeal malignancy. In 61 to 70 years group there were 7 hypopharynx and 5 oropharynx cases .The oldest patient had supraglottic malignancy (84 year old male)

Figure No.3. Age Wise Distribution of Primary Site of Malignancies

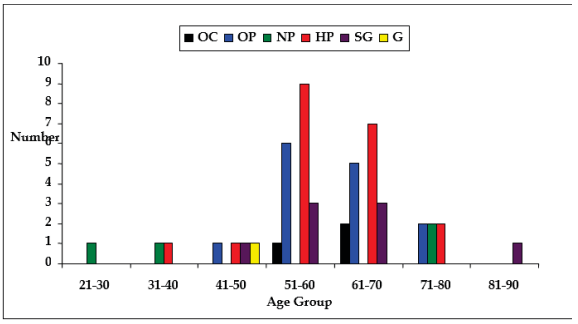

Table No.3.

Sl. No	Age Group	OC	OP	NP	HP	SG	G
1	1-10	0	0	0	0	0	0
2	11-20	0	0	0	0	0	0
3	21-30	0	0	1	0	0	0
4	31-40	0	0	1	1	0	0
5	41-50	0	1	0	1	1	1
6	51-60	1	6	0	9	3	0
7	61-70	2	5	0	7	3	0
8	71-80	0	2	2	2	0	0
9	81-90	0	0	0	0	1	0
10	91-100	0	0	0	0	0	0
Total	3	14	4	20	8	1	

Table 4 shows the habits or risk factors present in these patients. In the case of oral cavity malignancy 2 out of 3 were pan chewers, one male patient was a smoker and alcoholic. In the case of nasopharyngeal malignancy 3 out of 4 patients were smokers, 2 were chronic alcoholic and one was a pan chewer. All the patients except one (93%) were chronic smokers and 79% were chronic alcoholics in the case of oropharyngeal malignancies. In the hypopharyngeal malignancy group also 95% were chronic smokers and 70% were chronic alcoholics. Risk factors were prominent in the supraglottic malignancy group in which all the 8 patients were chronic smokers and 7 were chronic alcoholics. The only one patient who presented with glottic malignancy was a chronic smoker and alcoholic.

Table No.4. Risk Factors/ Habits

Sl. No	Type of Malignancy	Total	Smoking	Alcohol	Pan chewing	Smoking + Alcohol
1	Oral Cavity	3	1	1	2	1
2	Oropharynx	14	13	11	0	12
3	Nasopharynx	4	3	2	1	2
4	Hypopharynx	20	19	14	0	14
5	Supraglottic	8	8	7	0	7
6	Glottic	1	1	1	0	1

Discussion:

In our study the age range was 24 to 84 years with mean age of 60.02 years and median age of 60 years. In the Chinese study by Li et al.[6], the age group was comparable, in which the age range was 20 to 88 year with median 60 years. In the Nigerian study by Adoga et al [7] also the age range was comparable (23 to 78 years).

In our study there was a high male preponderance with a male female ratio of 9:1. In other studies also there is male preponderance but the M:F ratio is very high in our study Teshima et al. [8], Hiranandani[9], Issing et al. [10],Kimet al. [11], andOloge et al. [12]. The high prevalence in males in our study may be due to high prevalence of alcoholism and smoking in males in our region. Out of 5 females, the predominant malignancy was oral cavity and hypopharynx (2 each) and the remaining one was a case of nasopharyngeal carcinoma which was the youngest patient in our study. The oldest patient was a male of 84 years with supraglottic malignancy.

Regarding the site of primary lesion, the commonest was carcinoma hypopharynx (40%) followed by oropharynx (28%) and supraglottis (16%). 8% had carcinoma nasopharynx and 6% had oral cavity malignancy. Only one patient had glottis malignancy. Except oral cavity, in all the other sites, malignancies were more common in males. In the oral cavity malignancy male female ratio was 1:2.

Regarding the habits of the patients 95% of the patients were chronic smokers and 72% of them were chronic alcoholics. Pan chewing was present only in 6%. Only two patients were not using tobacco or alcohol. Both were females, one with nasopharyngeal carcinoma (24 years old) and one with hypopharyngeal carcinoma (36 years old). The other three patients who were not smokers, one was a male and two were females. The 68 year old male patient was suffering from oropharyngeal malignancy and he was a chronic alcoholic. The other two females of 70 years and 60 years were suffering from oral cavity malignancy and were pan chewers.

In our study it is also proved that tobacco and alcohol usage is an important risk factor for aerodigestive tract malignancies. This was in accordance with observations of Williams and Horm [13], Jayant et al. [14], Nandakumar et al.[15], and Sankaranarayanan et al. [16]. Chewing tobacco has strong correlation with carcinoma oral cavity as compared with tobacco smoking. Even though it is a small number of patients, pan chewing was associated more with oral cavity malignancy than with other upper aerodigestive tract malignancies. Our study is in accordance

with the study by Znaor et al. [17], which was conducted in Chennai and Trivandrum, South India.

Summary

There is definite male preponderance among patients with upper aerodigestive tract malignancies except oral cavity malignancy. The overall male to female ratio was 9:1. In the case of oral cavity it was 1:2 and in nasopharyngeal carcinoma it was 3:1.

All patients with upper aerodigestive tract malignancy had squamous cell carcinoma.

Upper aerodigestive tract malignancies are rare before the age of 20 years. Youngest patient was 24 year old female with nasopharyngeal carcinoma and oldest was 84 year old male with supraglottic malignancy.

Usage of tobacco and alcohol, the two risk factors that act synergistically was found to be very high in our study group. Pan chewing was associated with oral cavity malignancies.

Upper aerodigestive tract malignancies were common in the age group of 51 to 70 years with the exception of nasopharyngeal carcinoma which showed a bimodal age distribution in the 71 to 80 and 21 to 40 age group.

Conclusion

Usage of tobacco and alcohol are strongly associated with occurrence of upper aerodigestive tract malignancy. Males are

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predominantly affected. Commonest age of occurrence is 50 to 70 years. An initiative on the part of an individual to stop smoking and alcohol intake and on the part of government to educate the public on the ill effects of smoking and alcohol intake will go a long way to reduce the incidence of malignancies

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