



Evaluation of Clinico-Demographic Profile and Survival Rate among Patients of Head and Neck Cancer

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ABSTRACT

Background: Head and Neck cancer (HNC) is a recognized major public health concern all over the world. This research was undertaken to study age and gender predilection and clinical profile of Head & Neck Cancers

Materials and Methods: This was a retrospective study including 21121 patients with Head & Neck Cancer presented to tertiary care center, Ahmadabad. Patients' details of age, sex, site of carcinoma, stage at presentation and Outcome were recorded. The data was analyzed using MS office excel 2010 and Epi info software version 7.0.

Result: Male to female ratio was 4.8:1. The most common site of presentation of tumours was in cheek mucosa (29.01 %). On comparison of different anatomical sites, majority of patients were presented in locally advanced stage. Significant association ($p < 0.05$) was found between presentation of disease and literacy status. Overall, 5 - year survival rate was $60.5\% \pm 1.6\%$ when disease was localized.

Conclusion: Majority of patients diagnosed in locally advanced stage. Strategies for the early diagnosis and prevention of Head & Neck cancer must be undertaken by government to overcome this situation.

Key words: Head & Neck Cancer, Clinical profile, demographic profile, survival rate

INTRODUCTION

Head and neck cancers are the eighth most common cancer in the world, and having the largest burden in developing countries.¹

Head and neck cancer category includes cancers that develop in or around mouth, larynx, throat, nose, sinuses, and mouth. Majority of these cancers are squamous cell carcinomas.² Worldwide, incidence of these cancer accounts for more than 550,000 new case and 300,000 deaths each year and the 5-year overall survival rate is a just 40% to 50%.³

Head and Neck cancers have higher attribute in developing countries. These cancers have higher visibility among males as compared to female. Among all the different sites, oral Cancer is the most common. India's contribution to Head and Neck Cancer patients is 57.5% globally. Due to increased use of tobacco, India is now contributing to nearly 60% of Head and Neck Cancer patients worldwide. The number is expected to double by 2030. As per National Cancer Registry's data, Ahmedabad is having the highest incidence for Head and Neck cancer.¹

Survival in Head and Neck cancers is predicted primarily by site, stage and Human Papilloma Virus sta-

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tus, with other pathological and clinical factors influencing prognosis to a lesser degree.⁴ Information regarding site and stage of cancer and survival is essential to make effective planning of cancer control interventions. Hence this study was executed to describe clinic-demographic profile of cancer patients and also to estimate their survival.

METHODOLOGY

This was a retrospective study of 21121 confirmed cases of head and neck cancer, registered at tertiary care centre of Gujarat state, India during January 2014 to December 2016.

All available case notes and treatment records of cancer patients were retrieved from the Medical Records Department of the hospital. Information including patients' socio-demographic information, anatomical site of cancer, clinical extent of disease at time of diagnosis, outcome etc. were collected.

Data Capturing: Our institute has Indian Council of Medical Research designated Hospital based cancer registry from 2014 with a dedicated data entry operators and medico social workers. Files of confirmed malignancy cases were requisitioned from the medical records department. Social workers were trained by an oncologist for identifying and capturing the relevant patient details.

Data on clinical extent of disease were based on clinical assessment before treatment. The criteria used for coding the clinical extent of disease are as per cancer staging in National Cancer Institute and are hence standardized.⁵ They were as follows: localized disease - Cancer is limited to the place where it started, with no sign that it has spread.; regional - Cancer has spread to nearby lymph nodes, tissues, or organs.; distant metastasis - Cancer has spread to distant parts of the body. Staging details were verified by an oncologist before entering the data.

Patients who could not come for follow-up visits were contacted telephonically to ascertain the current status of the patient's malignancy. In case of no response to the first call, a second phone call was made after a few days. In case of no response to the second phone call, the patient was deemed lost on follow up.

Data Analysis: Patients' baseline characteristics, disease related factors have summarized using descriptive statistics. The categorical parameters have compared using chi-square test and Z-test. Survival analysis was performed. Occurrence of death was considered as event and 5-year survival curve was calculated using Kaplan-Meier method. All the analysis was performed using MS office 2010 and Epi Info software version 7.0.

We have taken prior permission from institutional Scientific Review committee (SRC) and Ethics committee (EC), before starting the study.

RESULT

Out of 21121 patients, majority (27.5%) of patients were from 41-50 years of age group, median age was 50 years with inter quartile age range of 40-60 years and age range of 4-92 years. Male to Female ratio was (4.8:1). Major group of patients were illiterate (40.2%) or educated up to primary level (37.77%). (**Table 1**)

The most common sites of cancer in both males and females were cheek mucosa (29.35 %, 27.37% respectively) and tongue (26.47%, 34.51% respectively). This was followed by gum (7.53%, 9.85% respectively), larynx (7.45%, 2.93% respectively), hypopharynx (3.79%, 8.74% respectively), pyriform sinus (5.08%, 2.18% respectively), tonsil (4.02, 1.35% respectively), palate (3.63%, 2.9% respectively) and Retro molar area (2.93%, 2.38% respectively).

Table 1: Socio-demographic details of patients

Socio-demographic Characteristics	Patients (n=21121) (%)
Age group	
≤30	1337 (6.3)
31-40	4375 (20.7)
41-50	5808 (27.5)
51-60	5297 (25.1)
>60	4304 (20.4)
Sex	
Male	17508 (82.9)
Female	3613 (17.1)
Education	
Illiterate	8290 (40.17)
Literate	205 (0.1)
Primary	7795 (37.77)
Secondary & Higher Secondary	3409 (16.52)
Degree/Diploma	938 (4.55)
Total	20637* (100)
Location	
Urban	3892 (18.4)
Rural	17229 (81.6)

*Available data was considered for analysis

Table 2: Distribution of patients according to anatomical sites of tumour

Anatomical sites	Gender	
	Male (17508)(%)	Female (3613)(%)
Cheek mucosa	5139 (29.35)	989 (27.37)
Tongue	4635 (26.47)	1247 (34.51)
Gum	1320 (7.53)	356 (9.85)
Larynx	1305 (7.45)	106 (2.93)
Hypopharynx	665 (3.79)	316 (8.74)
Pyriform sinus	891 (5.08)	79 (2.18)
Tonsil	704 (4.02)	49 (1.35)
Palate	637 (3.63)	105 (2.9)
Retro molar area	514 (2.93)	86 (2.38)
Oropharynx	323 (1.84)	16 (0.44)
Vestibule of mouth	234 (1.33)	50 (1.38)
Floor of mouth	230 (1.31)	29 (0.80)
Nasopharynx	155 (0.88)	59 (1.63)
Unspecified	756 (4.31)	129 (3.57)

(Z test for two proportion was applied for each site and difference between gender in each site was significant, p<0.05)

Table 3: Clinical extension of disease at diagnosis in top 6 different sites

Major sites at diagnosis	Clinical extension of disease		
	Localised (%)	Regional (%)	Distant (%)
Cheek mucosa	693 (17.7)	2817 (72)	404 (10.3)
Tongue	833 (21.4)	2689 (69.2)	366 (9.4)
Gum	199 (17.1)	854 (73.3)	112 (9.6)
Larynx	222 (21.8)	744 (73.2)	51 (5)
Hypopharynx	98 (13.1)	582 (77.8)	68 (9.09)
Pyriform sinus	88 (12.12)	586 (80.7)	52 (7.16)

*Available data was considered for analysis

Table 4: Association between clinical extents of disease at time of diagnosis with literacy status

Literacy status	Clinical extent of disease at time of diagnosis		
	Localised (%)	Regional (%)	Distant (%)
Illiterate	898 (15)	4392 (75)	545 (10)
Primary	997 (18)	3963 (73)	482 (9)
Secondary & Higher Secondary	453 (22)	1453 (70)	175 (8)
Degree/Diploma	138 (27)	344 (67)	34 (6)

*Available data was considered for analysis, Chi-square = 75.667, P value <0.001

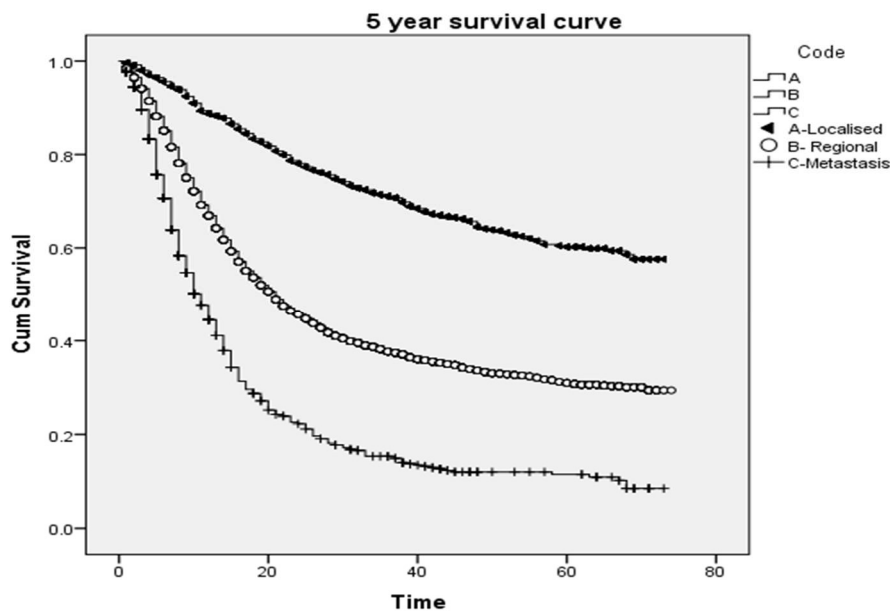


Figure 1: 5-year survival analysis as per clinical stage of disease

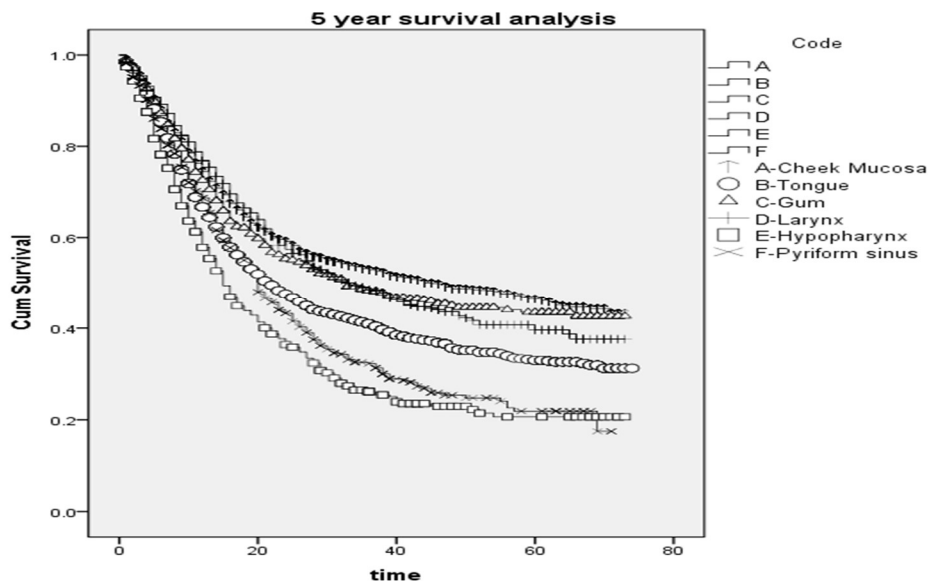


Figure 2: 5-year survival analysis as per anatomical sites of malignancy

The least common sites were oropharynx, vestibule of mouth, floor of mouth, nasopharynx. **(Table 2)**

Majority of patients were diagnosed when cancer was in regional stage. In cheek mucosa, (17.7%) patients had localised tumour at first diagnosis where as in tongue, (21.4%) patients had localised tumour. In hypopharynx and pyriform sinus only (13.1%) and (12.12%) had localised tumour respectively. **(Table 3)**

There was substantial association between clinical extent at time of diagnosis and educational level. Proportion of patients having localised tumour at time of diagnosis was increase with increase in literacy status ($p < 0.001$). **(Table 4)**

We could follow 11056 patients for calculating 5-year survival curve for different clinical staging of cancer as per clinical extension of disease at time of diagnosis. As shown in **Fig 1**, cumulative survival was shown on Y axis and months of survival was shown on X axis. 5-year survival was $60.5\% \pm 1.6\%$ when disease was localised. whereas it was $31.2\% \pm 0.8\%$ in regional cancer cases. For distant Metastatic cancer cases, five-year survival was $11.5\% \pm 1.5\%$.

We have calculated 5-year survival curve for top 6 anatomical sites of malignancy. As shown in **Fig 2**. Lowest survival was observed for patients with Hypo pharyngeal cancer ($20.6\% \pm 2.4$) and highest survival was observed for those with Cheek mucosa cancer ($46.4\% \pm 1.1\%$)

DISCUSSION

The present study is a retrospective and hospital-based study which focused only on the histologically confirmed cases of HNC patients. Age group that has been affected most commonly was 41-50 years followed by 51-60 years. Median age was 50 years with inter quartile range of 40-60 years and age range of 4-92 years. Only 6.3% patients were with less than 30 years. These findings are similar with Alam et al.⁶ The preponderance of such age distribution may be explained by the fact that these persons are usually exposed to risk factors for a sufficient duration, resulting in neoplastic changes.

In world, other studies had documented that HNC more occurred in males.^{7,8} A similar trend has been observed in this study where M:F ratio was 4.8:1. The male predominance is also apparent in all anatomic sites. These patterns of sex ratio may be explained by the fact that males are more commonly addicted to risk factors such as alcohol, smoking, and chewing tobacco which are consumed concurrently.

In the present study, the most common affected site was cheek mucosa (29%) followed by tongue (27.8%). Studies done by Alam et al.⁶ and Addala et al.⁹ also reported similar sites of affection among patients of HNC. The predilection for cheek mucosa and tongue may be due to Gutka chewing habits of people

in this region. Gutka is one of the most commonly used tobacco products.¹⁰

Majority of patients were presented with locally advanced stage of cancer. This result is similar with study done by Gilyoma et al.¹¹ Often a Pre-malignant lesion of oral cancer comes many years before developing carcinoma.¹² Despite of this fact, very few numbers of patients diagnosed at localised stage. Late presentations may be due to ignorance and lack of awareness because majority of patients were illiterate or educated up to primary level and we found that there was substantial association between literacy status and presentation of disease at time of diagnosis.

This study highlights that poor survival is associated with stages at the time of diagnosis. Which is similar with other studies.^{13,14} Late presentation of cases is an area of head and neck cancer care requires urgent attention. Detecting primary cancer at an early stage contributes to improved chances for successful treatment and thus for survival. 5-year survival for hypo pharyngeal cancer was poor when compared with other sites. study done by Pruegsanusak et al.¹⁵ also showed similar finding.

CONCLUSION

The present study has revealed that cheek mucosa was the most common anatomic location of Head and Neck cancer which was followed by tongue. Males were mostly affected by Head and Neck Cancer. Majority of patients diagnosed in locally advanced stage in all anatomical sites which was associated with poor survival outcome of cancer patients. So, strategies for the early diagnosis and prevention of Head & Neck cancer must be undertaken by government to overcome this situation.

LIMITATION

As this was a retrospective hospital-based study, a larger proportion of the data had to be loss to follow up which is due to the inherent nature of study design.

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