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Socio-Demographic and Clinical Profile of Lip, Oral Cavity and Pharyngeal Cancer in an Urban Cancer Centre in Coimbatore

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Abstract- The incidence and demographic data of cancer is the important basis for cancer prevention. Lip, oral cavity and pharyngeal cancers (LOCP) have a variety of geographic distribution and multiple risk factors. This study aims to describe and compare the epidemiological profile of LOCP cancers. A retrospective study was done and the data of LOCP cancer patients, admitted during the year 2017 at Coimbatore Medical College Hospital was collected. *A total of 441 LOCP cases were recorded, of which most cases belonged to the age group of 51-70 years and male gender. The most common subtypes are mouth and tongue. The increased incidence of LOCP cancer and its subtypes associated with smoking and tobacco points to the pivotal role of these risk factors in the pathogenesis of LOCP cancers. Hence better awareness and stringent measures is the need of the hour of the decrease the ongoing burden of these cancer types.*

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I. INTRODUCTION

Cancer ranks as a leading cause of death and an important barrier to increasing life expectancy in every country of the world.¹ GLOBOCAN 2018 stated that nearly 18.1 million new cancer cases and 9.6 million cancer deaths occurred in 2018 worldwide, compared with 14.1 million and 8.2 million, respectively, in 2012.^{2,3} Of these, the incidence of lip, oral cavity, and pharyngeal (LOCP) cancers is increasing. In 2018, LOCP cancers have been estimated to be responsible for 710,237 incident cases and 358,536 deaths accounting for about 3.9% of all cancer cases and 3.7% of cancer deaths.² The projections for the year 2035 show a 62% increase in the number of cases.⁴ LOCP cancers often have similar risk factors, common pathology and hence, are grouped together.⁵ The predominant risk factors for LOCP cancers include tobacco smoking and alcohol consumption although other factors, including the aspects of diet, may affect the risk.⁶ Of these the most important risk factor is tobacco use. There are about 60 carcinogens in cigarette smoke and nearly 16 carcinogens in chewing or smokeless tobacco. The types of chewable tobacco

products manufactured in the country are innumerable such as pan masala, guttka, pukar, khaini and are easily accessible to the common man. These products are kept for longer times in the buccogingival sulcus and accounts for higher incidences of oral cavity cancer.⁷ Due to the differences in the prevalence of specific risk factors, there is a considerable variation in the pattern of these cancers. A 20-fold global variation is seen in the incidence of these cancers.⁸ Two-thirds of this burden is in the developing countries, where under-ascertainment of cases is significant.⁹ In India too, there is a varied geographical distribution within the country.¹⁰ Moreover the data on cancer is limited because the cancer registries which provide data on incidence rates cover only less than 10% of the total population.¹¹ Hence it becomes necessary to analyse cancer trends based on the regional data and identify the specific risk factors as well as the future prospects for effective interventions in cancer prevention. Therefore, the present study aims to describe and compare the epidemiological profile of the LOCP cancer patients registered in our hospital.

II. METHODOLOGY

A record based retrospective study was conducted at the Regional Cancer Centre, Coimbatore Medical College Hospital, Coimbatore, Tamil Nadu, India. The study was conducted over a period of six months from February 2018 to July 2018. Time bound sampling was done. Data of all the cases of LOCP cancers registered from January 1, 2017 to December 31, 2017 were taken. A pre-tested, semi-structured case study form was used as the study tool. It has four parts: a) Demographic details: It includes the age, sex, socio-economic status and the residential address of the patients. Socio-economic status of the patients was classified according to the Modified Kuppuswamy scale.¹² The patients were classified according to the district they reside in. b) Clinical profile: It includes the cancer site, histopathological type and stage of cancer. The cancer site was classified according to the International Classifications of Diseases of Oncology, 3rd Edition (ICD-O). The cancers included: lip (ICD-O: C00), tongue (ICD-O: C01-C02), gum (ICD-O: C03), mouth (ICD-O: C04, C06), palate (ICD-O: C05), parotid gland (ICD-O: C07) submandibular gland (ICD-O:

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C08.0), tonsil (ICD-O: C09), oropharynx (ICD-O: C10), nasopharynx (ICD-O: C11), pyriform sinus (ICD-O: C12), hypopharynx (ICD-O: C13) and other ill-defined part of the lip, mouth and pharynx (ICD-O: C14). The cancer stage denotes the clinical extent of disease at the time of presentation. It consists of three categories- localised, regional and distant. c) Risk factors: It includes history of personal habits like smoking (cigarettes and bidi), alcohol and smokeless tobacco products like chewable tobacco, pan masala, gutka etc. d) Treatment modality: type of cancer treatment - chemotherapy, radiotherapy and/or surgery was analysed. The data on palliative care was also collected.

The data were free from personal identifiers and the patient confidentiality was ensured. The collected data were entered in Microsoft Excel and analysed using Statistical Package for Social Sciences (SPSS) version 23. Data were collected as categorical variables and results are displayed as proportions and tables, pie-charts and graphs were used to demonstrate the results.

III. RESULTS

A total number of 441 LOCP cancer cases were reported in our hospital during our study period, from January 1, 2017 to December 31, 2017. In the same period, there were 1992 cases of all types of cancer (978 in men and 1014 in women). LOCP cancers

comprised about 22.14% of all cancers registered in the study period.

Demographic details: Table-1 shows the sociodemographic characteristics of the study population. Among the 441 study subjects, 329 (74.6%) patients were male and 112 (25.4%) were female. Our study population is distributed from the age of 20 to 93 years with a mean age being 58.25 ± 11.4 years. The age group of 51-60 was found to have the highest percentage of cancer cases (142, 32.2%), followed by the age group of 61-70 years (132, 29.9%). As per the socio-economic status by the Modified Kuppuswamy scale, majority of them belonged either to lower (200, 45.4%) or upper lower class (213, 48.3%). The maximum number of cases came from the Coimbatore district (265, 60.1%), followed by Tiruppur (80, 18.1%) and Erode (47, 10.7%) districts respectively.

Clinical profile: Figure-1 shows the subtypes of the LOCP cancers. The most common subtype among LOCP cancers is Mouth (27%), followed by tongue (25%). Histopathologically, squamous cell carcinoma is the most common type contributing to 425 (96.5%) of cases. Figure - 2 shows the stage of cancer at the time of presentation. Nearly 73% of cancer cases presented with regional extent of disease. Localised and regional extent contributed to nearly 84% of cases.

Table - 1: Sociodemographic characteristics of LOCP cancer cases (n=441)

Sociodemographic characteristics	Number (n=441)	Percentage
Age group (in years)		
≤30	4	0.9
31-40	25	5.7
41-50	91	20.6
51-60	142	32.2
61-70	132	29.9
71-80	41	9.2
≥80	6	1.4
Gender		
Male	329	74.6
Female	112	25.4
Socio-economic status		
Lower class	200	45.4
Upper lower class	213	48.3
Lower middle class	26	5.9
Upper middle class	2	0.5
District wise distribution		
Coimbatore	265	60.1
Tiruppur	80	18.1
Erode	47	10.7
Nilagiris	19	4.3
Salem	10	2.3
Namakkal	5	1.1
Krishnagiri	1	0.2
Dharmapuri	3	0.7
Others	11	2.5
Total	441	100

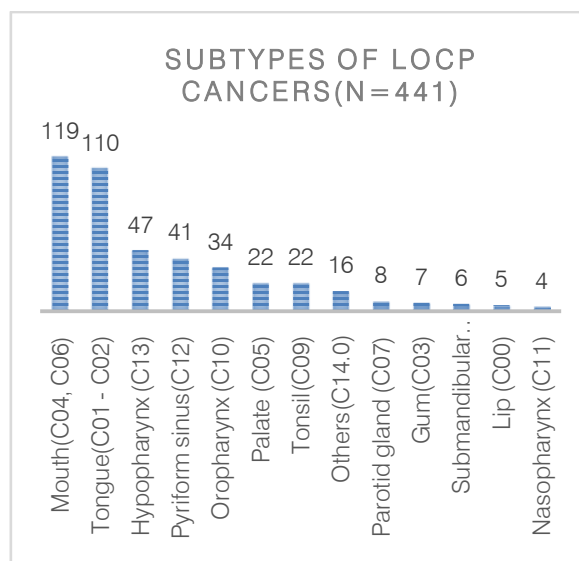


Figure 1: Subtypes of LOCP cancers (n=441)

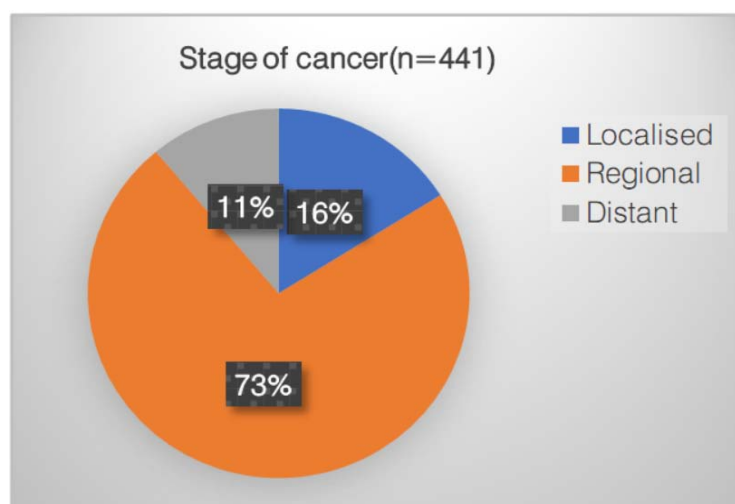


Figure 2: Distribution of patients according to stage of cancers (n=441)

Table – 2: Distribution of risk factors among the study population (n=441)

Risk factor		Type of cancer				Total
		Lip	Oral cavity	Pharynx	Salivary glands	
Smoked tobacco products	Yes	3	152	102	10	267
	No	2	106	62	4	174
Alcohol	Yes	1	117	82	6	206
	No	4	141	82	8	235
Smokeless tobacco products	Yes	1	160	102	3	266
	No	4	98	62	11	175
Total		5	258	164	14	441

Risk factors: Table – 2 shows the distribution of risk factors among the study population. Nearly 267 patients (60.1%) were smokers and 206 patients (46.7%) used alcohol. Smokeless tobacco products like gutka,

chewable tobacco, pan masala etc. were used by 266 patients (60.3%). Of the 258 oral cavity cancer cases, nearly 152 cases were smokers (58.9%) and 160 patients used other forms of tobacco (62%).

Treatment modality: Distribution of cancer cases according to type of treatment is shown in Table 2. Majority of them received the combination therapy of surgery and radiotherapy (69.6% patients). Nearly 8 people (1.8%) who were in the advanced stages of the disease received palliative care.

IV. DISCUSSION

The trends of lip, oral Cavity and pharyngeal cancers show wide variation worldwide. Hence it

becomes necessary to study the incidence and demographic profile of LOCP cancers based on regional data. The incidence of lip and oral cavity cancer in our study was nearly 13.9%. This is in sharp contrast to 3.9%

Table 3: Number and Relative Proportion of patients according to Type of Treatment given (n = 1992)

Type of treatment	Number (n=441)	Percentage
Surgery alone	42	9.5
Surgery + Chemotherapy	1	0.2
Surgery + Radiotherapy	307	69.6
Radiotherapy + Chemotherapy	55	12.5
Surgery + Chemotherapy + Radiotherapy	36	8.2
Total	441	100

incidence in the world and 7.6% incidence in India.^{2,13} Although the national statistics show a higher incidence of LOCP cancers, the present study shows that the incidence rate is almost doubled, compared to that of the national statistics. This is a major cause for concern. The males (74.6%) were affected more commonly than females (25.4%) in our study. The male – female ratio was nearly 2.9:1. This is in contrast to the global data where the ratio was approximately 2:1 and Indian data where the ration was nearly 1.8:1.^{2,10} This Indian study by Majhi et al mentions that patients have a better awareness and higher will to seek medical treatment in the developed parts of the country i.e., western and southern India, so the females in these areas, access the health care system better.² However these studies are done only in the capital cities like Chennai, Trivandrum and Pondicherry, and cannot be generalised to the whole south India. The present study was done in the Coimbatore district of Tamilnadu which is not as developed as these capital cities. Our hospital receives cancer cases from the farthest of the villages in neighbouring districts also. This can be attributed to the gross difference in the sex ratio compared to the national and global statistics. In our study, the majority of LOCP cancer cases (62%) belonged to the age group of 51-70 years. This corroborates with the studies done by Saika et al.,¹⁴ and Gupta et al.¹⁵

Lip and oral cavity cancers formed the major constituent of the LOCP cancers (51.2%) in the GLOBOCAN cancer statistics 2018.² In our study too, lip and oral cavity cancer constituted about 59.6% of all LOCP cases. Of this mouth (27%) was the most

common type. The incidence of the cancer hypopharynx is nearly 20% in our study, whereas it was only 10.2% in the global statistics.² However, the incidence of cancer salivary glands among our study population (3.2%) was comparatively lower when compared to the global statistics (7.6%). Du et al., stated that from 1990 to 2017, the global incidence for nasopharyngeal cancers decreased dramatically while the incidence for lip and oral cavity cancers and other pharyngeal cancers increased.¹⁶ GLOBOCAN 2018 data shows that nasopharyngeal cancers constitute around 18% of LOCP cancers.² In our study, there were only 4 cases of nasopharyngeal cancer (0.9% of LOCP cancers). Ariyawardana et al conducted a study in Australia where he reported that lip cancer was the most common cancer contributing to 36% of all LOCP cancers.⁵ But there were only 5 cases of lip cancer in our study. (1.1% of LOCP cancer cases). Such low numbers may be attributed to the limited sample size in the study. This may also be attributed higher incidence of personal habits like smoking, alcohol, tobacco chewing and consuming various forms of tobacco like gutka, pan masala and betel nut, which invariably increase the risk of oral cavity and pharyngeal cancers (except nasopharyngeal cancer) whereas have lesser association with lip cancer and nasopharyngeal cancer. It is also noteworthy that there is a steady decline in the prevalence of smoking and tobacco chewing in the developed nations.^{17, 18} This steady decline has been attributed to the decreased incidence of oropharyngeal cancers and increase in other LOCP cancer globally.⁵

Tobacco and alcohol are age old risk factors for LOCP cancers. In our study, nearly 60% cases used tobacco and 47% used alcohol. Worldwide, smoked tobacco is the most common form of tobacco use. Cigarette is the most commonly consumed smoked tobacco. In India however, the usage of bidis is highly prevalent. Similarly, there is an increased use of smokeless tobacco products like gutka, pan masala etc.¹⁹ In our study too, there is a high prevalence of tobacco and there is almost similar usage of smoked and smokeless products of tobacco. Avoiding tobacco and alcohol can prevent up to 80% of oral cancer.¹⁹ Interventions for smoking prevention or cessation are much effective when designed by individual counsellors, physicians, or workplace programmes. National smoke-free programs and policies have public health benefits for both alcohol- and tobacco-related health problems. In our setting, special emphasis should be given to the prevention of smokeless forms of tobacco due to the high prevalence of its usage.

V. CONCLUSION

Our results show a higher proportion of LOCP cancers among all cases in comparison with national and global statistics. Among the LOCP cancers, the subtypes which have a higher association with smoking and tobacco like oral cavity cancer and hypopharyngeal cancer have a higher incidence than those with lesser association like salivary gland tumours and lip tumours. This shows the increased need for awareness among public regarding the ill effects of smoking and alcohol. It also warrants the policy decision from the government to gradually withdraw tobacco and other related products from the market, with special emphasis to the smokeless tobacco products. Moreover, this study encourages to do more hospital-based studies apart from the studies based on registries, so that cancer patterns in each area can be discussed and thus effectively provide specific protection.

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