Prevalence of Oral Cancer in India

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Abstract

Aim: To review about the oral cancer in India

Objective: To understand about the prevalence, management, cause, symptoms, diagnosis and management of oral cancer in detail

Background: Oral cancer is defined as uncontrollable growth of cells seen in the oral cavity. It appears as a growth or sore in the mouth that does not cure. Oral cancer includes cancers of the lips, tongue, cheeks, floor of the mouth, hard and soft palate, sinuses, and pharynx.Squamous cell carcinoma is the most common type of oral cancer.
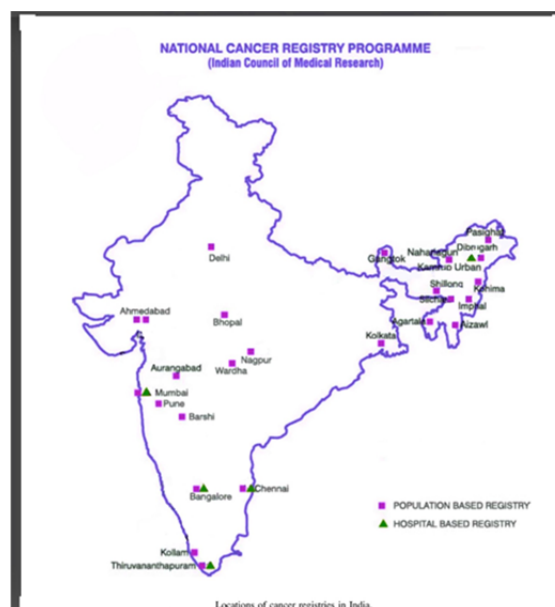
Reason : In the present century the prevalence of oral cancer is more due to excessive consumption of alcohol, tobacco chewing, smoking. Men face twice the risk of developing oral cancer when compared to women.

Key Words- Oral cancer, tobacco, alcohol consumption, poor oral hygiene, low economic status, diet

INTRODUCTION

Cancers are the most commonest cause of death in adults[1]. Oral cancer is any malignant neoplasm which is found on the lip, floor of the mouth, cheek lining, gingiva, palate or in the tongue. Oral cancer is among the top three types of cancers in India[2]. Severe alcoholism,use of tobacco like cigarettes, smokeless tobacco, betel nut chewing and human papilloma virus(HPV) are the most common risk factors for oral cancer[3,4]. Oral cancer may also occur due to poor dental care and poor diet[5].The incidence of oral cancer is highest in India, south and Southeast Asian countries. In India, 90 -95% of the oral cancers is squamous cell carcinoma [6]. The international agency for research on cancer has predicted that India's incidence of cancer will increase from 1 million in 2012 to more than 1.7 million in 2035. This indicates that the death rate because of cancer will also increase from 680000 to 1-2 million in the same period[7]. A case control study from India demonstrates that oral cancer is interrelated with low income. Low social economic class is interrelated with factors like nutrition, health care, living condition and risk behaviors which contributes to the development of oral cancer[8]. In many low-income and middle-income countries, including India, most of the population does not have access to a well organized and well regulated cancer care system. A diagnosis of cancer often leads to high personal health expenditures. Such expenditures can push entire families below the poverty line and may threaten social stability[9]. No significant advancement in the treatment of oral cancer has been found in recent years, though the present treatments improve the quality of life of oral cancer patients but the overall survival rate of 5 years has not improved in the past decades.
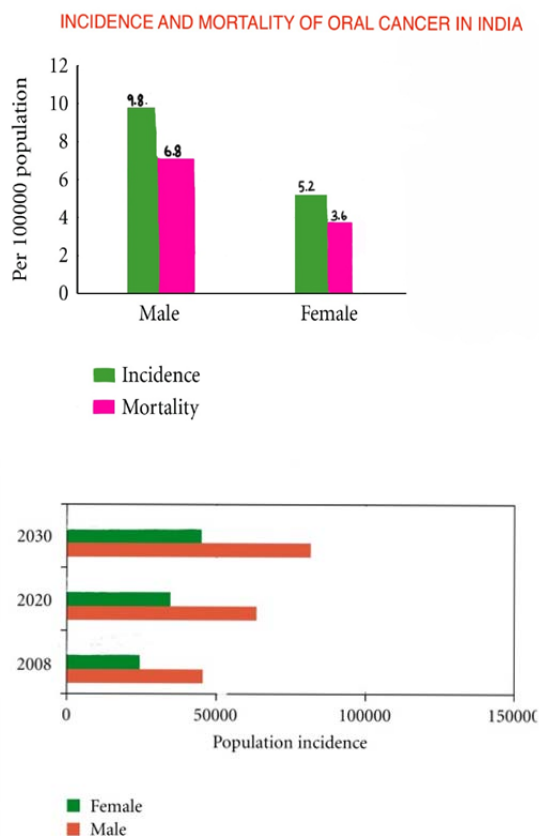
Here we review published data about the prevalence on oral cancer in India. We also discuss about the cause, symptoms, diagnosis and management of oral cancer in brief.

NATIONAL CANCER REGISTRY PROGRAMME
(Indian Council of Medical Research)

Locations of cancer registries in India.

BURDEN OF ORAL CANCER IN INDIA

In India, 20 per 100000 population are affected by oral cancer which accounts for about 30% of all types of cancer[10]. Over 5 people in India die every hour everyday because of oral cancer and the same number of people die from cancer in oropharynx and hypo pharynx[11]. CANCER registration is not compulsory in India, so the true incidence and mortality may be higher, as many cases are unrecorded and loses follow up[12]. None of the national registry provides cancer incidence or mortality data for India. However, the National Cancer Registry Program provides population-based data from a selected network of 28 cancer registries located across the country[9]. A number of studies use data from urban and rural cancer registries established at the national regional level. Urban registries includes Delhi ,Mumbai and Chennai and rural registries include Barshi ,Dindigul, Manipuri ,Karunaga-pally , Eranakulam ,Srikakulam and Bhavnagar cancer is of significant public health importance

to India[11]. Mostly it is diagnosed at later stages which result in low treatment outcomes and high costs. Many patients cannot afford the treatment. In rural areas, patients have inadequate access to trained providers with very limited health services. Hence the delay is largely associated with advanced stages of oral cancer. Earlier detection of oral cancer offers the best chance for long term survival and has the potential to improve treatment outcomes and make healthcare affordable[13]. Mostly Oral cancer affects the people from the lower socioeconomic status of society and people in rural area due to a higher exposure to risk factors such as the use of tobacco[14,15].

INCIDENCE AND MORTALITY OF ORAL CANCER IN INDIA

INCIDENCE IN INDIA

According to the statistics, in 2012 the incidence of oral cancer in India is 53842 in males and 23161 in females[9]. Oral cancer is considered to be a disease which occur in elderly people. However, most of the oral cancer cases occur between the age of 50 to 70 years, but it could also affect children as early as 10 years. Incidence of oral cancer increases by age[16]. The commonest age is the fifth decade of life[17]. Considering the gender in all the age groups, men are more affected than women. In India, men are two to four times more affected than women due to the changes in the behavioral and lifestyle patterns[8]. However, high incidence rates are seen amongst the sub populations of women in southern India because of tobacco chewing[11]. Cancer in the tongue is the most common type of cancer and the common site is buccal mucosa and gingiva. In Uttar Pradesh, buccal mucosa or cheek cancer exceeds all the other types of cancer. The incidence of oral cancer in patients who have smoking and tobacco chewing

habit is 8.4 times higher than that of patients who did not have that habit. Oral cancer incidence depends on both qualitative and quantitative points of view. A study states that the use of tobacco in the form is smoking has 5.19 times higher risk or precancerous lesion on palate when compared to that of tobacco chewing. States like Uttar Pradesh, Jharkhand and Bihar in India witness more risk of oral cancer[7].

REGIONAL VARIATION

The burdens imposed by cancer vary greatly between the regions of India. Oral cancer incidence and mortality is generally high in affluent States. Oral cancer mortality relate is high due to the mortality in rural areas where cancer treatment facilities are scarce. Poor individuals are also at a higher age-specific mortality risk than are a affluent people. Indian States like Tamil Nadu and Kerala achieve relatively good health outcomes, future health developments will be integrally linked to the nation's economic fortunes and collective commitment to equity and universal health care provision[18]. The use of smokeless tobacco (pan parag, zarda etc) is on rise in north India and especially in states like Uttar Pradesh. The impact of habit lead to high incidence of oral cancer in this region.India's demographic and epidemiological transitions have been slow compared with the progress achieved in the past half century in many other parts of Asia. The population is still fighting for relatively high rates of parasitic, bacterial and viral diseases, while encountering increasing levels of illness caused by cancer[19].

CAUSES

High incidence of oral cancer in India is attributes to a number of etiological factors. Tobacco consumption habit among the patients either as smokeless tobacco or smoking, alcohol consumption are the common causes for oral cancer[20]. Positive family history of oral cancer, Viral infections like HPV, poor oral hygiene are the other causes for oral cancer. Based on the TMN classification ,48% of the oral cancer cases were present in the later stages.

TOBACCO USE

Estimates indicate 57% of men and 11% of women between 15- 49 years of age use some form of tobacco[16].More than 90% of OC cases report using tobacco products[8]. The forms of tobacco are use of smokeless tobacco, use of betel liquid, pan (pieces of Areca nut), processed or unprocessed tobacco, aqueous calcium hydroxide (slaked lime) and some pieces of are a nut wrapped in the leaf of piper betel vine leaf. Additionally gutka, panparak, zarda,mawa, kharra and khainni. These are dry mixture of powdered tobacco, lime and Areca nut flakes which are chewed or sucked orally. Women chewing tobacco 10 or more times a day have risk 9.2 times that of non-tobacco chewers irrespective of age of initiation of tobacco chewing[8]. Univariate analysis revealed that, in terms of oral dipping products, the risk was 7.3 for consumption of gutka, 5.3 for consumption of chewing tobacco and 4 for consumption of supari (pure areca nut. However, the lower risk was found for mishiri[20].

Smoking includes use of cigarettes, bidi and hookah. These tobacco products are commercially available in sachets or packets and it is very popular among Young adults which leads to oral cancer in young age. Bidi smokers are 4 times at risk of developing oral cancer compared to non-smokers[21]. This could be due to poor combustibility as well as the nicotine and tar content of bidi which exceeds that of cigarette [8,20]. This could be due to poor combustibility as well as the nicotine and tar content of bidi which exceeds that of cigarette[22]. The number of bidis smoked per day, a longer duration of smoking and a younger age at starting to smoke was associated with oral cancer.

ALCOHOL CONSUMPTION

Drinking alcohol is an important risk factor for oral cancer. Risk increases with number of drinks consumed in a week. A prospective study in India has found that alcohol consumption increases the incidence by 49% among current users and 90% in past drinkers[23]. This could be due to residual effect of alcohol consumption or them having quit the habit due to serious illness. Consumption of alcoholic beverages was associated with increased risk for Oral cancer in men but it was not observed in women because very few women consumed alcohol[8].

ORAL HYGIENE

Poor oral hygiene also causes oral cancer. In one study, more than 85% of oral cancer patients had poor oral hygiene[10]. Poor oral hygiene related attributable risk is around 32% for men and 64% for women in India. Patients wearing dentures for more than 15 years and not visiting a dentist regularly was highly associated with Oral cancer[24].

PREVENTION

Oral cancer will remain a major health problem and the incidence will increase by 2020 and 2030 in both sexes, however early detection and prevention will reduce this burden. Oral cavity is accessible for visual examination, and oral cancers and premalignant lesions have well-defined clinical diagnostic features but oral cancers are typically detected in their advanced stages. Oral cancer can be diagnosed earlier by self mouth examination, increase awareness in high-risk communities. Early detection has better curing rates and it will also reduce the cost for the treatment.

In India, the incidence of oral cavity cancers, is still one of the highest in the world because tobacco products are easily available and the lack of awareness in the community[2]. Oral cancer can be prevented by action against risk factors, especially tobacco which is the key factor

-The enforcement of laws on youth access to tobacco and alcohol; the prohibition of all advertising and promotional activities by the tobacco industry

 -the prominent inclusion of strong pictorial warnings in existing written warnings on the labels of tobacco and alcohol products[11]

-More multi centre randomized controlled trials of dietary supplementation for persons with precancerous lesions are required to assess the efficacy of vitamins, retinoids and carotenoids[2]

-The role of HPV should be tackled in culturally acceptable health programmes promoting safe sexual practices[20]

-Education campaigns are needed to raise public awareness about oral cancer and its links with tobacco and alcohol consumption.

-Facilities for accurate staging, including advanced imaging, and experienced multidisciplinary teams can improve longterm survival and quality of life[11]

CONCLUSION

This review gives an idea on burden, prevalence, regional variation in India , cause, symptoms and prevention of oral cancer. The lifetime risk for mortality from cancer in India for both males and females is 61%. According to statistics, the number of deaths in 2012 due to oral cancer is 36463 in males and 15361 in females[9]. Preventive measures has to be taken to reduce the incidence and mortality of oral cancer and for better survival. Because of the high population in India, cancer control activities should be prioritized to make maximum use from the limited resources[25]. People less than 40 years who are habitual cigarette smokers, alcohol consumers, and betel quid chewers must undergo oral mucosa screening regularly so that oral cancer can be identified as early as possible[5].

REFERENCE

[1] Rajesh Dikshit, Prakash C Gupta, Chinthanie Ramasundarahettige, Vendhan Gajalakshmi, Lukasz Aleksandrowicz, Rajendra Badwe, Rajesh Kumar, Sandip Roy, Wilson Suraweera, Freddie Bray, Mohandas Mallath, Poonam K Singh, Dhirendra N Sinha, Arun S Shet, Hellen Gelband, Prabhat Jha for the Million Death Study Collaborators, "Cancer mortality in India: a nationally representative survey"

[2] J. K. Elango, P. Gangadharan, S. Sumithra, and M. A. Kuriakose, "Trends of head and neck cancers in urban and rural India," Asian Pacific Journal of Cancer Prevention, vol. 7

[3] Anil K. Chaturvedi, William F. Anderson, Joannie Lortet-Tieulent, Maria Paula Curado, Jacques Ferlay, Silvia Franceschi, Philip S. Rosenberg, Freddie Bray, and Maura L. Gillison, "Worldwide Trends in Incidence Rates for Oral Cavity and Oropharyngeal Cancers"

[4] PLopez Jornet,* FJ Gomez Garcia,* M Lucero Berdugo,* F Parra Perez,* A Pons-Fuster Lopez, "Mouth self-examination in a population at risk of oral cancer"

[5] Wen-JiunLin,1 Rong-SanJiang,1 Shang-HengWu,1 Fun-JouChen,2 andShih-AnLiu1,3, "Smoking,Alcohol, andBetel QuidandOralCancer: AProspective CohortStudy"

[6] Manisha Sharma1, Manas Madan2, Mridu Manjari3, Tejinder Singh Bhasin4, Spriha Jain5, Saumil Garg6, "Prevalence of Head and Neck Squamous Cell Carcinoma (HNSCC) in our population: The clinic-pathological and morphological description of 198 cases"

[7] Freddie Bray, Jian-Song Ren, Eric Masuyer and Jacques Ferlay, "Global estimates of cancer prevalence for 27 sites in the adult population in 2008"

[8] Sree Vidya Krishna Rao1, Gloria Mejia1, Kaye Roberts-Thomson1, Richard Logan2, "Epidemiology of Oral Cancer in Asia in the Past Decade- An Update (2000-2012)"

[9] Shalini Gupta, Rajender Singh1, O. P. Gupta2, Anurag Tripathi, "Prevalence of oral cancer and pre‐cancerous lesions and the association with numerous risk factors in North India: A hospital based study"

[10] R. Sankaranarayanan, K. Ramadas, G. Thomas et al., "Effect of screening on oral cancer mortality in Kerala, India: a cluster-randomised controlled trial," The Lancet, vol. 365, no. 9475, pp. 1927–1933, 2005.

[11] Bhawna Gupta1, Anura Ariyawardana2,3 and Newell W. Johnson2 "Oral cancer in India continues in epidemic proportions: evidence base and policy initiatives"International Dental Journal 2013; 63: 12–25

[12] Swaminathan R, Rama R, Shanta V. Lack of active follow-up of cancer patients in Chennai, India: implications for population-based survival estimates. Bull World Health Organ 2008 86: 509–515.

[13] V. L. Allgar and R. D. Neal, "Sociodemographic factors and delays in the diagnosis of six cancers: analysis of data from the 'National Survey of NHS Patients: cancer'," The British Journal of Cancer, vol. 92, no. 11, pp. 1971–1975, 2005.

[14] D. I. Conway, M. Petticrew, H. Marlborough, J. Berthiller, M. Hashibe, and L. M. D. Macpherson, "Socioeconomic inequalities and oral cancer risk: a systematic review and meta-analysis of case-control studies," International Journal of Cancer, vol. 122, no. 12, pp. 2811–2819, 2008.

[15] D. I. Conway, M. Petticrew, H. Marlborough, J. Berthiller, M. Hashibe, and L. M. D. Macpherson, "Socioeconomic inequalities and oral cancer risk: a systematic review and meta-analysis of case-control studies," International Journal of Cancer, vol. 122, no. 12, pp. 2811–2819, 2008.

[16] KenRussell Coelho1,2, "Challenges of the Oral cancer burden in India"

[17] SS Rahman1, MK Sarker2, MHA Khan3, SS Biswas4, MM Saha5, "Clinical profile of oral squamous cell carcinoma patients attending a tertiary care hospital"

[18] Johnson NW, Warnakulasuriya S, Gupta PC et al. Global inequalities in incidence and outcomes for oral cancer: causes and solutions. Adv Dent Res 2011 23: 237–246.

[19] Nair MK, Varghese C, Swaminathan A. Cancer: Current scenario intervention strategies and projections for 2015. In: Burden of Disease in India, Background Papers . New Delhi: National Commission for Macroeconomics and Health, Ministry of Health and Family Welfare, Government of India; 2005. pp. 218–225.

[20] Mohandas K Mallath*, David G Taylor*, Rajendra A Badwe, Goura K Rath, V Shanta, C S Pramesh, Raghunadharao Digumarti, Paul Sebastian, Bibhuti B Borthakur, Ashok Kalwar, Sanjay Kapoor, Shaleen Kumar, Jennifer L Gill, Moni A Kuriakose, Hemant Malhotra, Suresh C Sharma, Shilin Shukla, Lokesh Viswanath, Raju T Chacko, Jeremy L Pautu, Kenipakapatnam S Reddy, Kailash S Sharma, Arnie D Purushotham, Richard Sullivan, "The growing burden of cancer in India: epidemiology and social context"

[21] Madani AH, Jahromi AS, Dikshit M, et al (2010b). Risk assessment of tobacco types, oral cancer. Am J Pharmacol Toxicol, 5, 9-13.

[22] Rahman M, Fukui T (2000). Bidi smoking, health. Public Health, 114, 123-7.

[23] Cancela M de C, Ramadas K, Fayette J-M, et al (2009). Alcohol intake, oral cavity cancer risk among men in a prospective study in Kerala, India. Community Dent Oral Epidemiol, 37, 342-9.

[24] Guneri P, Cankaya H, Yavuzer A, et al (2005). Primary oral cancer in a Turkish population sample: Association with sociodemographic features, smoking, alcohol, diet, dentition. Oral Oncol, 41, 1005-12.

[25] manik rao kulkarni, " head and neck cancer burden in India" ,10.5005/jp-journals-10001-1132