



PREVENTION AND EARLY DETECTION OF ORAL CANCER: A REVIEW

Devika Agrawal

Public health professional.

Dr. Nimmi Singh*

Associate Professor; Department of Dentistry(OMR), IGIMS, Patna.
*Corresponding Author**ABSTRACT**

Oral Cancer is one of the most common cancers in India. Factors such as socio-economic status, negligence, inaccessibility to affordable and reliable dental care facilities and excessive use of alcohol and tobacco contribute to the primary reasons why oral cancer occurs in men and women. However, late detection and lack of preventive measures lead to higher burden in India. Other than this, unrecorded alcohol use further adds to the problem, which makes the process of tracing and detecting oral cancer in India, more difficult. The aim and objective of this piece is to highlight the grave burden of oral cancer in India, along with the importance of prevention and early detection of oral cancer.

KEYWORDS : Oral Cancer, early detection, prevention, India**INTRODUCTION**

Oral Cancer can develop in any part of the mouth, including lips, tongue, cheeks, floor of the mouth, etc. Oral Cancer emerges as a growth or sore in the mouth. Two-thirds of the global incidence of Oral Cancer is found in low and middle-income countries. Oral Cancer is one of the most common type of Cancer in South Asian Countries like India, Pakistan, Sri Lanka, and Bangladesh. India alone, accounts for one-fifth of all oral cancer cases and one-fourth of all deaths related to oral cancer. Worldwide, oral cancer accounts for 2%-4% of all cancer cases.

Over the years, oral health and hygiene has become one of the major global health priority. Oral Cancer is amongst the top three Cancers in India. It accounts for over 30% of all cancers reported in the country. Age-adjusted rates of Oral Cancer is 20 per 1,00,000, one of the highest in the world. In India, the Squamous cell carcinoma of the oral cavity is the most common type of Oral Cancer. Worldwide, it accounts for approximately 3% of all cancers.

There are many problems that contribute to such high numbers. In India, Oral Cancer is diagnosed at later stages. This is especially a problem due to India's socio-economic conditions. Since the Cancer is prevalent in the lower socio-economic strata, diagnosis often results in low treatment outcomes and considerable costs, which patients typically cannot afford. The public health infrastructure also carries limitations in terms of access to services. The lack of a desirable support system further adds to the problem, making it a high-burden disease. Lack of information related to prevention, early detection, general awareness and diagnostic facilities leads high incidence and death rates.

Risk Factors**1. Epigenetic Factors (Independent of genes)****a. Tobacco, Betel quid and Mate**

Various studies from around the world have shown that consumption of Tobacco (smoked or eaten), Betel quid (paan) and Maté (Tea like beverage consumed in South America) heighten the risk of oral cancer. Additionally, they also cause DNA alterations that pose as a risk factor to the health of the coming generations.

b. Alcohol

The independent role of alcohol in causing oral cancer is unclear and highly debated by medical professionals. However, epidemiological evidence establishes the synergistic role played by alcohol with tobacco.

c. Diet & Nutrition

International Agency for Research on Cancer (IARC)

confirmed that a lower intake of fruits and vegetables increases risk of cancer development. Particularly vegetables such as carrots, fresh tomatoes, and green peppers were associated with reduced risk of oral and pharyngeal cancer. Other food groups that have a protective effect are fish, vegetable oil, olive oil, bread, cereals, legumes, protein, fat, fresh meat, chicken, liver, shrimp, lobster, and fibre.

2. Genetic Factors

Certain individuals inherit the susceptibility of inability to fight against or repair DNA damage caused by tobacco or betel quid. This puts them at a higher risk of having oral cancer.

3. Environmental Factors**a. Viral infections**

Viral infections of latent or chronic nature are usually responsible for inducing malignant transformation by interfering with the host's cell cycle machinery. This makes them more prone to oral cancer.

4. Immunosuppression Factors**a. Occupational risks**

Exposure to excessive solar radiations of UV light increases the risk of lip cancers. Certain other professions such as metal workers (exposure to metals), woodworking in the automobile industry and manufacturing of rubber products have shown to be a risk factor for oral cancer.

b. Radiation

There is evidence to suggest the interrelation between exposure to ionizing radiation and development of oral cancer.

Prevention Of Oral Cancer

In India, Oral Cancer is the 3rd most common Cancer. The tongue is the leading site among oral cancers in India. Use of Alcohol, Tobacco, Smokeless tobacco such as Betel Liquid and a betel quid substitute called Gutka are amongst the strongest risk factors for Oral Cancer. In 'The National Survey on Extent and Pattern of Substance Abuse,' 2019, it is mentioned that there are about 16 crore persons who consume Alcohol in India alone. Out of these, 2.9 crore people are dependent users, it said.

Primary prevention - In India, lack of awareness and means to obtain the right nutrition, and other dietary deficiencies, together, account for 90% of Oral Cancers. Therefore, preventing tobacco use and increasing the consumption of nutritive food products, such as fruits and vegetables, can potentially prevent a vast majority of Oral Cancers. Other factors that can contribute in effectively bringing down the rate of Oral Cancer is good oral and sexual hygiene, and

awareness of the symptoms and early signs of Oral Cancer.

More than 80 percent of oral cancers can be attributed to tobacco and/or alcohol consumption. The World Health Organization Framework Convention on Tobacco Control, an evidence-based international treaty, aims to reduce the demand for tobacco globally by price, tax, and non-price measures.

Along with this, the Scheme for Prevention of Alcoholism and Substance (Drugs) Abuse by the Ministry of Social Justice and Empowerment needs effective, innovative strategies aimed at delivery of prevention and treatment services for people affected by substance use disorders. Some of the most effective ways to do so is to involve families, schools, and communities across in order to spread relevant information about the harms of substance use.

Early Detection of Oral Cancer

A physical examination of the Oral Cavity is one of the most integral part of diagnosis of Oral Cancer. When primary prevention fails, early detection of Oral Cancer can lead to very effective treatment outcomes. Self-examination is an effective way in which oral cancer can be detected early. This includes examining the head and neck, the face, lips, cheeks, the roof and floor of the mouth for any lumps, bumps, swelling, changes in texture or colour.

Visual screening, and routine biopsies of targeted individuals (In India, ages 30 and above) could enable favourable results in lessening the burden of Oral Cancer in India. Randomised screenings, especially within the populations that have a history of tobacco use, should be carried out. It is also important for doctors to identify people with primary squamous cell carcinoma or epithelial dysplasia of the oral cavity and refer them further evaluation. Any treatment of such signs with mere medication can worsen the condition of patients. As part of treatment, a person with early stages of mouth cancer may be recommended radiation therapy. In such cases, treatment will likely be more effective in non-smokers or people who have quit smoking.

An average patient delay in diagnosis is 3 months, which may vary from less than a week to more than 2 years. Often times, people may also have little interest in estimating their oral cancer risk, based on their age, sex, or habits such as drinking or smoking. In some cases, the public that has regular access to medical and dental care tend to assume that they have successfully been screened of all related diseases, including oral cancer. The lack of awareness about the techniques used to diagnose oral cancer requires a head, neck, and oral examination. Thus, the failure of a primary care doctor to perform such procedures will likely go unnoticed by the average patient. It is therefore important to familiarise people with signs and symptoms of oral cancer.

With early detection, it is possible to cure cancer fully. In April, 2020, an Indian medical technology start-up has developed a device called 'OralScan' that could help in detecting oral cancer early. Several other governmental and non-profit institutions have been working on research and diagnosis of Cancer in India, such as National Institute of Cancer Prevention and Research, Regional Cancer Centre (RCC), Sanjeevni..Life Beyond Cancer, and many others. Due to loss of livelihood, organisations such as the Global Cancer Concern India help patients' families by providing school fees under Child Sponsorship Program. Benefits of early detection or oral cancer may include reduced costs, prolonged survival rate, and better quality of life.

CONCLUSION

India has one of the lowest survival rates of Oral Cancers in the world, 5-year survival of around 50% after treatment with

surgery and radiotherapy. Therefore, necessary steps by the civil society and the government are essential for creating awareness, and encouraging timely diagnosis of individuals across the country to control the high oral cancer burden. For this, strategic interventions across identified populations will have to be carried out for effective prevention and early diagnosis of oral cancer in India.

No conflict of interest.

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