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Opinion Article

Oral Cancer Epidemiology and its Inflammation

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DESCRIPTION

Cancer and inflammation are typically categorized as two different diseases. About 150 years later, a number of studies have confirmed the connection between inflammation and cancer. Infectious disorders, such as the helicobacter pylori infection and stomach cancer, as well as hepatitis and liver cancer, are examples of specific, well-known associations between inflammation and cancer. In addition to these viral disorders, it is estimated that 15 to 20 percent of all malignancies are associated to inflammation [1].

The most common causes of oral cancer are alcohol and tobacco, but other factors can contribute to carcinogenesis as well. Additionally, advancements in research techniques, particularly in molecular biology, have led to the identification of molecules involved in inflammation and cancer development. It has become obvious that they are closely connected and function to either promote or occasionally prevent carcinogenesis. Comprehensive gene searches and batch searches by bacterial flora have been possible in recent years [2]. Additionally, immune checkpoint molecules like PD-1/PD-L1 have been identified, and it is now obvious how the immune system and inflammation are interconnected. The prevalence of oral cancer is still rising globally, in contrast to the findings of these studies.

Depending on the field, there are many definitions of oral anatomy. Oral cancer is frequently defined and categorized using the well-known tumour, nodes, metastasized classification of the Union for International Cancer Control (UICC), which is only applicable to carcinoma. The oral cavity is roughly divided into six sections by the buccal mucosa, upper alveolar and gingiva, inferior alveolar and gingiva, hard palate, tongue, and oral cavity floor. The buccal mucosa is one of these, and it is separated into the upper and lower lips, the cheek, the posterior acetabulum, and the upper/lower buccal gingival sulcus. After the circumvallate papilla, the tongue is separated into the dorsum of the tongue, tongue edge, and under surface of the tongue. Although in Japan cancer of the lips is frequently treated as oral cancer [3].Squamous epithelium in stratified layers makes up the oralmucosa. As a result, squamous cell carcinomas are prevalent and account for more than 90% of oral malignancies. These are widespread around the globe, and the histological types are frequently well to moderately differentiated, in contrast to the frequently observed poorly and undifferentiated types in the nasal cavity, nasopharynx, oropharynx, and so on [4,5].

Oral cancer and tobacco is the most prevalent risk factor for all malignancies is smoking. Additionally, it is the most common causative risk factor and independent contributor to oral cancer. The International Head and Neck Cancer Epidemiology (INHANCE) consortium report included a statistical analysis of 13.935 patients with head and neck cancer and 18,691 controls from 19 research reports. In this study, 4110 patients with oral cancer were included, and the prevalence of the disease rose in direct proportion to smoking frequency and duration. The larynx and nasopharynx displayed high odds ratios when the site in the head and neck was taken into account, but the oral cavity and mesopharynx displayed significantly lower values. Despite the fact that there are currently more than 1 billion smokers worldwide, smoking rates have been decreasing in several places in recent years as a result of growing health awareness [6].

The INHANCE consortium report compiled 15 research reports and conducted statistical analyses on 14,219 controls and 9,107 patients with head and neck cancer. 572 cases of mouth cancer were included in the report, and the frequency of oral cancer rose in direct proportion to the rise in alcohol intake. When compared to cigarette use, alcohol use is rising globally, and because it is so adaptable, it is still employed in medicine, as in the case of mouthwash.

The betel palm is a plant that is well-known throughout Asia and is associated with mouth cancer. Although it is a much localized risk factor, oral cancer is more common in places where it is widely used. Although it has a history of usage in Chinese medicine and as an anthelmintic, it is also frequently chewed as a luxury item. Despite warnings of the health risks linked with betel quid use, production is still growing [7].

Salivary microbiome oral cancer and microorganisms in the mouth has been the subject of years' worth of investigation.

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However, its direct contribution to carcinogenesis has not received widespread acknowledgement. In recent years, the development of next-generation sequencers has made it possible to perform meta-analyses to look into the makeup of the entire bacterial flora, and numerous articles in the literature have discussed the connection between disease and the disruption of bacterial flora homeostasis (dysbiosis) [8]. Numerous cancers, including colorectal, pancreatic, esophageal, oral, and others, have been linked to particular bacteria, particularly fusobacterium species, with oral cancer, it has been discovered that the risk of head and neck cancer is inversely correlated with the amount of oral native bacteria cotynebacterium and kingella. To yet, it is unclear how precisely the bacterial flora is engaged in carcinogenesis because it is challenging to research and assess the effects of a huge bacterial flora on the host. Intriguingly, it has recently gained widespread acceptance that gut bacterial flora significantly affects the local immune system, and there are evidence that it is connected with tumour immunity, particularly the immunological checkpoint mechanism.

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