Essentials of Oral Carcinoma: A Review

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Abstract

In recent periods Oral carcinoma has become a highly significant threat to whole public health in the world and, specifically for dentists. Oral carcinoma comes within the top ten rankings among all carcinoma in the world. lots of research work is going on about the carcinoma, after that prognosis rate is not so impressive to date which is going to be a great challenge to medical science. Oral squamous cell carcinoma can be represented as "natural course", which originated from non-aberrant keratinocytes cells, with history of long term exposure to a various stimulus that breaks down homeostasis process of it, Leads to hyperplasia, dysplasia in terms of various degrees, carcinoma in situ with lots of clinical oral manifestations. This nature course offers a roadway for various research approaches in medical science. The very early recognizable clinical alteration that can any epithelium on his path to creating an Oral squamous cell carcinoma is predominantly the generation of malignant fatal disease, like leukoplakia, lichen planus, erythroplasia are most common.

Keyword: *Oral carcinoma; Public health challenge; Management, Medical research.*

Introduction

In recent periods Oral carcinoma has become a highly significant threat to whole public health in the world and, specifically for dentists. Oral carcinoma comes within the top ten rankings among all carcinoma in the world. lots of research work is going on about the carcinoma, after that prognosis rate is not so impressive to date which is going to be a great challenge to medical science. By this paper, we are going to high light the causes, histologic concept which will helpful for future researchers. Cancer of the oral cavity is malignant and develops from the upper and lower lip. Maximum oral cancers are squamous cell carcinoma because more than ninety percent of oral carcinoma are histologically originating from squamous cells.[1] Various types of differentiation found in oral cancer and the metastasis lymph nodeare present most of the time.[2]

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Epidemiology: Carcinoma of the oral cavity is 2 to 3 times more in males than females in the maximum population throughout the globe. Data from all around the world says, all types of carcinoma in the oral cavity and pharyngeal region come and together represent the 6th most common carcinoma all around the globe.[3] As per the report of IARC incidence oral carcinoma of vermian lip border, tongue, the floor of the mouth, buccal mucosa, salivary glandare high three lakhs diagnosed cases mortality rate is about 1.5 lakh annually. The incidence of oral carcinoma in south Asian countries is high in countries like Pakistan, India, Sri Lanka. A high incidence of oral cancer is found in some parts of Europian countries like Hungary, Slovakia.[3] Oral carcinoma prevalence varies as per the Human Development Index of the UNDP. As per the HDI index, prevalence is high in a developed nation.[3]

Definition: Carcinoma of the oral region most of the time is highly malignant which develops commonly from the lower lip, upper lip buccal mucosa, and tongue. Most often it arises from the squamous cell so-called as Oral Squamous cell carcinoma because in the oral cavity, ninety percent of carcinoma this carcinoma has

various levels of differentiation and metastasis of the lymph node involvement is there most of the cases.[2]

Risk factors: Carcinoma of the oral cavity can be preventable. The use of smoking and smokeless tobacco and consumption of alcohol is the main risk factors for developing oral carcinoma, consuming them all simultaneously has the power of electric effect to develop oral cancer[4,5] according to the report of IARC in the year 2007, snuff uses in smoking tobacco has a carcinogenic effect,it can cause pancreatic as well as oral carcinoma.[6] The chances of developing oral carcinoma are three to four times more in smoke tobacco users as compared with non-users.[7] The chance to develop oral carcinoma is thirty-five percentage less in population those people who stop smoking for more than 4 years ago than the people who are current smokers, and not higher in population with no smoking tobacco use evidence for since twenty years when compared with nonsmokers or non-smokeless tobacco users.[8] An environment in which smoke tobacco uses is more is also a high risk; the risk for carcinoma in the oral cavity is more than eighty-seven percentagehas higher chances of developing carcinoma. The use of smoking tobacco and smokeless tobacco made the immunity power of our oral cavity very weak and made the road to develop mild to severe form of gingivitis, periodontitis, and carcinoma of the oral cavity.[9,10]The smoke generated from smoking tobacco has various elements that develop cancer and these contain has various groups like nitrosamines, carcinogenic aromatic amines. nitrosamines, aromatic amines are called as pre-carcinogens, which must suffer coordinated alterations by oxidative enzymes, so that the final product becomes poor in electrons]. Like oxidation, enzymatic metabolism can also produce carcinogenic products, like free radicals, which has unpaired electrons that make them extremely reactive being capable of promoting mutations by complex mechanisms.[11] Tobacco use makes direct interaction oral epithelium to free radicals of oxygen and nitrogen that can affect antioxidant defense mechanisms. Free radicals like ozone, hydrogen peroxide,hydroxyl radical, ROO,NO are most commonly found in the oral precancer lesion and cancerous lesion.[12]

Alcohol: For developing oral carcinoma alcohol has a great hand. it has a local effect as well as a systemic effect. Alcohol (ethanol) increases the permeability of oral mucosa, which absorbs the lipid particles of oral epithelium. Which latter causes epithelial atrophy and alcohol also interfere with DNA synthesis. Alcohol has a direct effect on decreased salivary flow. It also affects the liver's general function to deal with toxic or potentially carcinogenic compounds.[13]

Other factors for developing oral carcinoma: Among other factors for developing oral cancer, there is the human papillomavirus (mainly linked with fatal carcinoma of the oropharyngeal region and UV radiation.[14] According to the IARC HPV16 is the main causative for the development of oral carcinoma in the oral cavity. HPV18 has also the capability of causing oral carcinoma. The most preferable site for HPV to develop oral carcinoma are pharyngeal tonsils and the portion of the tongue which is inside oropharynges, prevalence of HPV18 to develop oral carcinoma is about 75% in the pharyngeal region. The presence of Human papillomavirus 16, and 18 are the best prognostic biomarker for detecting oral pharyngeal carcinoma.[15] Most of the studies state that Human papillomavirus gives a contribution to carcinoma by 2 viral coted proteins, one is E6 protein helps in degradation of p53 cellanother one is E7 helps in degradation of the tumor suppressor genome product called retinoblastoma protein, UV radiationalso has a great contribution inupper and lower lip carcinoma. [16]

Microscopic and macroscopic aspects Carcinogenesis: Oral Squamous Cell Carcinoma takes many years to develops and in between this period,various neoplastic sites are transforming and changes occur in the oral cavity.[17] The process of a normal cell to transfer into carcinoma is a very complex multistage phenomenon. It develops when epithelial cells of the oral cavity go through by various genetic changes most often oral carcinoma starts with the changes of a less number of normal keratinocytes. These types of changes can be expressed via cytogenetic changes and epigenetic processes that purely change the progression of the normal cell cycle, DNA mechanisms, cell apoptosis that leads to various mutations, by direct contact to various biological factors, carcinogens.[18-20]

For a Better approach to oral carcinoma, oral carcinoma always considered as a fatal disease that involves multiple interactions between various cells, generated by the original carcinoma tissue, the recently generated cells, and tissue. The Oral Squamous cell carcinoma contains CAFs, immune cells and some other tissue during genetic expression oncogenic changes occurs which on the other hand contributes to the huge production of cytokines, EMT, and changes in the

microenvironment. CAFs have some important role in developing metastasis and proliferation.. most of the immune response gets suppressed in squamous cell carcinoma due to the huge production of cytokines. Most Oncogenic mutation in gene expression has a great hand in contribution to micro-environmental modification like ROS deposition, huge production of cytokines, and EMT. The most vital things in the tumor microenvironment are CFAs. Which has a great contribution tothe process of metastasis and invasion most important feature in most is that the adaptive immune response is suppressed by cytokines' huge production.[20]

Oral carcinoma keynotes: Oral carcinoma is always a preventable disease. Highly risk factors are smoking tobacco, chewing tobacco, and alcohol (long term exposure), these things have dynamic and synergistic adverse effects. More prevalent in humans for more than fifty years. a genetic mutation in keratinocytes gave way to develop carcinoma. The pre-cancerous lesion is always a precancer of oral cancer. Most common site ore tongue, lip, buccal mucosa, the floor of the mouth. The biopsy is the most usual method to detect. Screening program reduces the mortality rate

Potentially malignant disorders and dysplastic changes: Oral squamous cell carcinoma can be represented as "natural course", which originated from nonaberrant keratinocytes cells, with history of long term exposure to a various stimulus that breaks down homeostasis process of it, Leads to hyperplasia, dysplasia in terms of various degrees, carcinoma in situ with lots of clinical oral manifestations. This nature course offers a roadway for various research approaches in medical science. The very early recognizable clinical alteration that can any epithelium on his path to creating an Oral squamous cell carcinoma is predominantly the generation of malignant fatal disorders, like leukoplakia and erythroplasia which are the most common ones. Leukoplakia and lichen planus is a white precancerous risk factor, by freezing out other diseases which are already known to not favorable for neoplasm. The microscopic picture exhibits various epithelial modifications like acanthosis, hyperplasia.[19, 20.]

The OSCC originates from epithelial dysplasia phenomena of epithelial cells and represents itself by a neoplastic proliferation mechanism which directly damages ontogenically local epithelial membrane. The power of metastasis is directly linked with the various degree of new growth differentiation of the carcinomatous cells. According to World health organization International Classification of tumors are of three types,well differentiated, moderately differentiated, and poorly or undifferentiated tumor. From Histological pattern of some recent studies says that pattern of invasion (various bonding patterns between invading tumor cells), which has the best prognostic factor in oral squamous cell carcinoma. World health organization classification is very needful and helpful histologically. Till a recent date, there are no particular biomarkers for oral carcinoma. Some new studies show that high levels of interleukin-8 and Spearmidline N1 acetyltransferase 1 can differentiate between patients with Oral squamous cell carcinoma and healthy patients, with high sensitivity.[20-22]

Conclusion

The prognosis of most patients is still poor, despite therapeutic advances in this and many other malignancies. Early screening and early treatment process remain the key point to improving the survival rate of patients In recent days there are lots of technique with well equipped medical facilities to prevent the metastasis of all kinds of carcinomas throughout the glove and in medical science, there is various reasonable information which is capable for early diagnosis and better treatment of another third of cases, where the Oral Squamous cell carcinoma countenances this type of chances. Everything is possible and it is in the own hand od each human being to modify their way of lifestyle and create barriers to all risk factors which are the main cause for carcinoma. Various oral health Education to the people in a different community and especially those people with high risk to develop oral cancer, a good fundamental knowledge to reach the main point of oral carcinoma. Carcinoma of the oral cavity causes various degrees of damage in speech, deglutination and food chewing where mild to severe pain is the main sign. Among the various triggering factor which develops the oral pain, there are various types of mediators in the new growth microenvironment, lack of palliative therapy, a dense fifth cranial nerve innervation, and continuous different oral function, and mild to severe pain due to treatment and opioid resistance.

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