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Modifiable risk factors of oral cancer and its prevention

Factores de riesgo modificables del cáncer bucal y su prevención

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ABSTRACT

Introduction: cancer, in any of its variants and locations, constitutes a health problem for modern man, especially because it is a chronic disease, which increases proportionally to the aging of the population.

Objectives: characterize the main risk factors and prevention actions for oral cancer.

Materials and methods: the search engine Google Academic, Infomed and Scielo was used and a search strategy was applied using the keywords: Oral cancer; Prevention; Risk factors. A total of 17 bibliographies were consulted.

Development: oral cancer is a disease with multifactorial causes, which depends on the action of social, behavioral, hereditary and environmental factors. Cuba has an Oral Cancer Detection Program, aimed at reducing morbidity and mortality from oral cancer.

Conclusions: the main modifiable risk factors for oral cancer are tobacco, alcohol and poor eating habits.

RESUMEN

Introducción: el cáncer, en cualquiera de sus variantes y localizaciones, constituye un problema de salud para el hombre moderno, sobre todo porque es una enfermedad crónica, que se incrementa proporcionalmente al envejecimiento de la población.

Objetivo: caracterizar los principales factores de riesgo y las acciones de prevención del cáncer bucal.

Materiales y métodos: se utilizó el buscador Google Académico, Infomed y Scielo y se aplicó una estrategia de búsqueda utilizando las palabras claves: Cáncer bucal; Prevención; Factores de riesgo. Se consultaron un total de 17 bibliografías.

Desarrollo: el cáncer bucal es una enfermedad de causa multifactorial, la cual depende de la acción de factores sociales, conductuales, hereditarios y ambientales. Cuba cuenta con un Programa de Detección del Cáncer Bucal, orientado a disminuir la morbilidad y mortalidad

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por cáncer bucal.

Conclusiones: los principales factores de riesgo modificables del cáncer bucal son el tabaco, el alcohol y los malos hábitos alimenticios.

INTRODUCTION:

Cancer in any of its variants and location is a health problem for modern man, especially because it is a chronic disease that increases in proportion to the aging of the population.[1]

Oral cancer affects people's quality of life, causing irreversible consequences in the oral cavity that can have a psychological impact on the patient, consequences on their family and social environment, and create difficulties in various functions such as chewing and speaking.[2]

The study of this disease has been framed in three important periods, the first was descriptive and extended from the beginning of history to the mid-18th century; The second delved into the clinical and pathological aspects, and ended around the year 1900; while the third period extends to the current era and includes the definition and molecular diagnosis, as well as therapeutic advances.[3]

Today, approximately 90% of cancers that appear in the mouth respond to the type of squamous cell or squamous cell carcinoma. Various studies have shown that the main risk factors associated with this pathology are smoking, alcoholism and poor dietary habits.[4,1]

It is predicted that in the period from 2007 to 2030, cancer mortality will increase between 7 and 17 million worldwide, due in part to demographic growth and the aging of the population. The World Health Organization (WHO) estimates that 7.6 million people died of cancer in 2005 and that in the next 10 years 84 million more will die if action is not taken.[3]

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Men in countries with a low and medium Human Development Index (HDI), such as most Latin American countries, have an age-standardized oral cancer mortality rate of 8.7%, surpassed only by cancer. lung (11.0%). In Central and South America, a 17.2% increase in oral cancer mortality is expected by 2030.[5]

In Cuba, oral cancer has remained among the top ten tumor locations since 1970, occupying the seventh and tenth positions. When comparing 2011 with 1970, the mortality rate increased by 23.8%, that is, three men for every woman.[3,1]

Particularly in the province of Matanzas, the prevalence of oral cancer shows an increasing trend. In a study carried out in 2017 by Valentín et al.2 in the territory served by the Cárdenas Hospital, ages over 50 years predominate, as do males and white skin color.

Health promotion allows people to have greater control over their health. It encompasses a wide range of social and environmental interventions aimed at benefiting and protecting individual health and quality of life by preventing and solving the root causes of health problems, and not by focusing solely on treatment and cure.[6]

Although oral cancer is located in regions accessible to physical examination, most patients are diagnosed in advanced stages when the chances of cure are remote, which makes treatment difficult and worsens the patients' prognosis.[7]

Bad eating habits and excessive consumption of alcohol and tobacco are factors that are increasingly present in various age groups. A deeper knowledge of these risk factors for oral cancer in doctors and stomatologists could have a favorable impact on health indicators since late diagnoses would be avoided, making treatment and subsequent course of the disease more feasible. That is why this review was carried out with the **objective** of characterizing the main modifiable risk factors for oral cancer and identifying the actions to be taken for its prevention.

METHOD

An updated bibliographic review was carried out regarding the topic. The information was collected between April 15 and May 20, 2022. The search engine Google Academic, Infomed and Scielo was

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used and a search strategy was applied using the keywords and connectors: Oral cancer; Prevention; Risk factors. The quality, reliability and methodological validity of the selected articles were analyzed to carry out an adequate review. Taking into account relevance as a selection criterion, a total of 17 bibliographic sources were used in preparing the report. The exchange with specialists who work on the topic enriched the vision of it.

DEVELOPMENT

The oral cavity, due to its location, special anatomy and various functions it has in human life, as well as the permanent exposure to physical, chemical and biological agents, has its own significance, both on a biological and social level. Therefore, this disease requires more careful medical attention, both in prevention and in the early detection of any condition.[8]

Oral cancer is a disease with multifactorial causes, which depend on the action of social, behavioral, hereditary and environmental factors. The etiology of this pathological entity is unknown, but there are a series of risk factors that can act as carcinogens, favoring the development of this disease.[9]

The bibliographic review carried out allowed the authors to identify the main modifiable habits that directly influence the development of oral cancer: smoking, alcohol and poor dietary habits.

Smoking habit

Smoking is one of the most common habits among the world's population, both in men and women; It is a risk factor for the development of malignant and precancerous tumors in the oral cavity. Various forms of this habit, such as regular smoking, reverse smoking, and secondhand smoke, represent variable indicators of the incidence and prevalence of tumors, as well as the type, quantity, and intensity of tobacco consumption.[10]

According to the WHO, 30% of adults in the world population are smokers, of which 5 million die annually, equivalent to about 13,000 deaths daily; Half occur in people between 30 and 69 years old, which represents a reduction of more than 20 years in life expectancy. However, the fact that it is considered a soft drug and is legally marketed reduces the credibility and effectiveness of the actions

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and strategies drawn up by States and international organizations for its control.[11]

The harmful effects of tobacco on the oral mucosa are due to the fact that it contains around 300 carcinogenic substances, which are converted into active metabolites that can interact with DNA through the action of oxidative enzymes, including nicotine, arsenic, methanol, ammonium, cadmium, carbon monoxide, formaldehyde, butane and hydrogen cyanide. Other carcinogens such as carbon-14 and polonium-210 and even pesticide residues have been found in tobacco smoke. In addition to being carcinogenic, exposure to heat maintained by tobacco combustion can worsen damage to the oral mucosa.[7]

Leal et al.[9] report that, for the World Health Organization, tobacco is the main cause of anticipated death in the world. It is directly related to the appearance of 29 diseases, of which 34.5% correspond to neoplasms and more than half of cardiovascular diseases.

When carrying out the present review, a significant amount of research results was observed, which refers to smoking as the main risk factor associated with the formation and progression of squamous cell carcinoma. A study carried out by Rodríguez et al.[12] postulates that 90% of people with oral cancer use tobacco in some form, and the risk is directly proportional to the duration of the habit and the amount of tobacco consumed.

The risk of developing cancer varies not only depending on the dose and duration of consumption (the risk increases significantly after 20 years of consumption), but also on the quality and technique of consumption.[7]

It is the authors' opinion that since tobacco smoke contains carcinogenic components, the risk of developing oral cancer is also present in people who are exposed to it, whether at home or at work.

Alcohol

Although the mechanism by which alcohol causes oral cancer is still not known with certainty, along with tobacco, it is an important etiological factor and, furthermore, its harmful effects are greater when consumed simultaneously. Several oncogenic mechanisms of alcohol have been proposed: it

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acts as a local irritating chemical factor, causes a decrease in immunological indices, facilitates the absorption of other carcinogenic substances due to its caustic effect on the oral mucosa and its oxidation to acetaldehyde, a carcinogen that interferes with DNA synthesis and repair.[7]

Leal et al.[9] consider alcohol to be a powerful psychoactive drug, which produces a high number of effects such as: local dehydration of the mucous membranes, delayed healing, increased susceptibility to chronic candidiasis and reduced blood flow. salivary, which can increase the risk of neoplasia and seriously affect the body, specifically at the oral level.

A study carried out by Valentín et al.[2] showed that alcohol is one of the most predominant factors in patients diagnosed with oral cancer, because more than half of them consumed it in large quantities. This data is very similar to that reported by Rodríguez et al.[12], who attributed that close to 80% of people with oral cancer are drinkers.

For the authors of this review, since alcohol consumption causes loss of appetite and therefore a decrease in the levels of proteins and vitamins necessary for the body, the patient is left vulnerable and in conditions conducive to developing oral cancer.

Bad dietary habits

Eating spicy foods or foods stored at very high temperatures can cause chronic tissue damage and enhance its activity against other carcinogens (tobacco, alcohol or chronic trauma), by acting as a damaging agent for the oral mucosa.[9]

For Domínguez et al.[13], excessive consumption of fried, cooked or spicy red meat favors the development of oral cancer, because they release carcinogenic substances such as heterocyclic amines.

The study by Marín Páez[14] is interesting because the intake of hot or highly seasoned foods was positively harmonized with the appearance of oral lesions. Pérez Reyes et al.[15] agrees with this criterion because in his study more than 50% of the sample reported ingesting hot foods or drinks, mainly coffee.

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Nutritional deficiencies, especially vitamins and minerals, favor the appearance of oral cavity cancer. The most important nutritional condition associated with oral cancer is iron deficiency anemia. In iron deficiency, mucosal atrophy is found, which, associated with other risk factors, can increase mitotic activity and decrease the repair capacity of the epithelium. Nutritional iron deficiency is also accompanied by micronutrient deficiencies that favor oral carcinogenesis.[7]

Two studies[7,9] postulate that states of immunosuppression related or not to nutritional disorders also favor the development of cancer, due to the difficulties of the immune system in eliminating cancer cells.

Dietary polyphenols reduce the incidence of oral carcinoma and protect against this type of cancer by inducing cell death and inhibiting growth, invasion and metastasis, which could partly explain the beneficial effects of fruit and vegetable consumption.[7]

The consumption of fruits and vegetables is of great importance, they are rich in micronutrients and have an antioxidant and protective effect against squamous cell carcinoma.[9]

Prevention

Efforts should be directed at prevention in all its aspects such as education, health promotion, diagnosis of potentially malignant diseases and their early detection. This involves applying the most appropriate treatment methods and rehabilitating patients.[3]

Health Education activities are very important as a fundamental tool for health promotion to help establish knowledge, attitudes and values that help the individual and the group to make appropriate choices and decisions regarding health and well-being. It includes the affective sphere, the formation of feelings, convictions, values, needs and habits.[3]

It is the authors' opinion that a healthy lifestyle includes avoiding smoking, obesity and alcohol consumption, as well as ensuring a healthy diet, engaging in physical activity and receiving systematic medical care, prevents the appearance of these malignant lesions.

Since 1988, Cuba has implemented the National Oral Cancer Diagnosis Program, supported by

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MINSAP. Unique in the world due to its nationwide coverage and because its functions include the comprehensive examination of lesions of the oral complex in people over 15 years of age, with the fundamental objective of detecting them in early stages.[3,10]

Oral self-examination is a preventive action that has significant importance in the detection of premalignant lesions that are characterized by difficult treatment and unfavorable prognosis.[2,17]

Currently, health promotion and disease prevention occupy a prominent place in Public Health, so it is essential that these programs be carried out by dentists and the rest of the health team, to raise awareness and distinguish that the important thing is not to treat the sick but to promote people's health.[17]

The role of the stomatologist is fundamental in the prevention and early diagnosis of oral cancer. Most oral cancers are prevented by eliminating unhealthy lifestyles such as smoking and alcohol consumption. The operation of oral counseling, both at the level of stomatological services and in the communities, acquires significant importance, since changes would be achieved in their behavior towards the care of their oral health.[2,7]

The bibliographic analysis carried out by the authors allowed them to visualize that to more effectively warn about diseases as lethal as oral cancer, prevention must also be aimed at the individualized treatment of each patient.

CONCLUSIONS

The main modifiable risk factors for oral cancer are tobacco, alcohol and poor eating habits. The work of health professionals is essential in identifying and controlling these risk factors, by carrying out preventive actions aimed at ensuring that the patient is diagnosed early and receives timely treatment.

DECLARATION OF CONFLICT OF INTEREST

The authors declare the absence of conflicts of interest.

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