The role of dentistry in the general medical context: interrelationship and impact on health cardiovascular diseases, diabetes

El papel de la odontología en el contexto médico general: interrelación e impacto en la salud enfermedades cardiovasculares, diabetes

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Abstract

The article examines the role of dentistry in the context of general medicine, highlighting the relationship between the condition of the oral cavity and the general condition of the body. The relevance of the study of the role of dentistry in the general medical context is continuously increasing in the light of modern scientific discoveries confirming the close relationship between oral health and the general condition of the body. To meet the aim of the study, a literature review was carried out on the topics of the relationship between oral health and general medical health. Dental diseases such as caries, periodontitis and others not only affect the condition of the oral cavity but can also have a serious impact on overall human health. Recent studies show that oral infections can contribute to the development of cardiovascular diseases, including atherosclerosis and myocardial infarction, as well as impair diabetes control and increase the risk of rheumatoid arthritis. In conclusion, oral health has a significant effect on the overall physical and psychological well-being of a person. Infections and inflammation in the oral cavity can provoke or worsen various general medical issues like cardiovascular diseases, diabetes, asthma, rheumatoid arthritis and others.

Keywords: dentistry, general medical context, impact on health cardiovascular diseases, diabetes, prevention.

Resumen

El artículo examina el papel de la odontología en el contexto de la medicina general, destacando la relación entre el estado de la cavidad bucal y el estado general del cuerpo. La relevancia del estudio del papel de la odontología en el contexto médico general aumenta continuamente a la luz de los descubrimientos científicos modernos que confirman la estrecha relación entre la salud bucal y el estado general del cuerpo. Para cumplir con el objetivo del estudio, se realizó una revisión de la literatura sobre los temas de la relación entre la salud bucal y la salud médica general. Las enfermedades dentales como la caries, la periodontitis y otras no sólo afectan el estado de la cavidad bucal, sino que también pueden tener graves consecuencias para la salud humana en general. Estudios recientes muestran que las infecciones bucales pueden contribuir al desarrollo de enfermedades cardiovasculares, incluidas la aterosclerosis y el infarto de miocardio, además de alterar el control de la diabetes y aumentar el riesgo de artritis reumatoide. En conclusión, la salud bucal tiene un efecto significativo en el bienestar físico y psicológico general de una persona. Las infecciones e inflamación en la cavidad bucal pueden provocar o empeorar diversos problemas médicos generales como enfermedades cardiovasculares, diabetes, asma, artritis reumatoide y otras.

Palabras clave: odontología, contexto médico general, impacto en la salud enfermedades cardiovasculares, diabetes, prevención.

Introduction

The role of dentistry in the context of general medical practice is attracting increasing attention both among medical professionals and among the scientific community and the public at large. As science advances and we deepen our understanding of the relationship between different body systems, it becomes apparent that oral health needs to be considered as an important component of overall human well-being[1].

Traditionally, dentistry has been considered separately from other medical disciplines, but modern research and clinical observations allow us to look at the oral cavity as one of the key indicators of the general condition of the body. This concept opens up new perspectives for understanding the mechanisms of interaction between dental diseases and various common pathologies.

This article attempts to summarize the accumulated data on the impact of dental conditions on general human health and on the relationship between oral health and various body systems. Not only will the evidence supporting this relationship be considered, but we will also discuss the practical implications of this knowledge for clinical practice and population health.

An analysis of key aspects of the role of dentistry in the general medical context was also carried out, emphasizing the importance of a more integrated approach to patient health care and the need to strengthen cooperation between dentists and general practitioners.

Materials and methods

When writing an article on the role of dentistry in a general medical context, a literature review was conducted on the topics of the relationship between oral health and general medical health, such as the impact of periodontal infections on general health, the relationship between dental problems and cardiovascular diseases, the impact of oral health on pregnancy and child health, as well as other aspects. The data of epidemiological studies, especially multicenter ones, were analyzed, which reveal the relationship between dental indicators and various general medical diseases. The results of clinical studies that examine the effectiveness of dental treatment and prevention on the general health of patients, as well as its impact on the prognosis of the course of general medical diseases, were also considered.

Results

The role of dentistry in the general medical context is undergoing significant changes, reflecting the expansion of our understanding of the relationship between oral health and the general state of the body[2]. Modern scientific research strongly confirms that oral health plays a key role in maintaining overall human health and well-being.

Research in recent decades has established a close relationship between dental diseases such as caries, periodontitis, and other common diseases, including cardiovascular, endocrine, respiratory, and even some oncological diseases. For example, infections in the oral cavity can contribute to the development of atherosclerosis, hypertension and other cardiovascular diseases. It has also been proven that chronic inflammatory processes in the oral cavity worsen the control of diabetes mellitus and may increase the risk of developing rheumatoid arthritis.

The impact of dentistry on the overall health of the body extends to many other systems. For example, oral pathologies can impair the quality of breathing and contribute to the development of respiratory diseases, including bronchitis and pneumonia[3]. In addition, dental problems can affect nutrition and digestion, which can affect the overall nutritional status and eating habits that affect metabolism and health.

These discoveries force a revision of the traditional approach to medical practice, including closer cooperation between dentists and general practitioners[4]. The development of such an integrated approach to patient health care is becoming increasingly relevant and necessary, especially in the context of population-based healthcare. Ultimately, awareness of the role of dentistry in maintaining overall health contributes to the development of more effective prevention and treatment strategies, which ultimately leads to an improvement in the quality of life and health of the population.

To systematize and analyze the accumulated data on the relationship between dentistry and general health, several key aspects can be identified. Studies show that dental problems such as periodontitis and caries may be associated with an increased risk of developing cardiovascular diseases, diabetes, rheumatoid arthritis and other pathologies. This indicates a close relationship between oral health and the general condition of the body[5].

The research is aimed at identifying pathogenetic mechanisms that explain the relationship between dental and general diseases. For example, inflammation in the oral cavity can provoke systemic inflammation and activation of the immune system, which in turn can worsen chronic diseases[6]. Studies of the oral microbiota and its impact on general health are also an object of interest. Disorders in the composition and functioning of the microbiota can affect various body systems, including the cardiovascular and immune systems.

Identifying the relationship between dental and general diseases helps to develop effective prevention and treatment strategies. This may include regular dental checkups, enhanced oral hygiene, as well as joint treatment of dental and general diseases[7]. Strengthening cooperation between dentists and doctors of other specialties, such as internists, cardiologists and endocrinologists, allows for a more integrated approach to patient health care. This can contribute to more effective detection and treatment of related diseases.

In general, the systematization and analysis of these data helps not only to better understand the relationship between dentistry and general health, but also to identify potential ways to improve practice in patient health care[8]. This may include both improving the methods of diagnosis and treatment of dental diseases, and changing approaches to the organization of medical care, taking into account the close relationship between oral health and the general condition of the body.

Dental diseases such as caries and periodontitis have a much wider range of effects than just damage to the tissues of the oral cavity. Here are some examples of how these dental problems can have a serious impact on a person's overall health. Periodontitis and caries are inflammatory diseases that can lead to the appearance of bacteria and inflammatory mediators in the bloodstream[9]. This, in turn, can cause or worsen other inflammatory conditions in the body, such as arthritis, heart disease, and even cancer.

Pathological processes associated with caries and periodontitis can stimulate the body's immune system. In the long term, this can lead to dysregulation of the immune response, which increases the risk of developing autoimmune diseases and allergic reactions [10]. Recent studies show that dental infections, especially periodontitis, may be associated with an increased risk of cardiovascular diseases such as atherosclerosis, myocardial infarction and strokes. This is because inflammation in the oral cavity can provoke systemic inflammation and enhance the formation of plaques in the arteries.

Women with periodontal disease may have an increased risk of premature birth and low birth weight. Pathological processes in the oral cavity can also have a negative impact on spermatogenesis and reproductive health in men. Caries and periodontitis may be risk factors for the development of chronic general medical diseases such as diabetes, rheumatoid arthritis, chronic obstructive pulmonary disease (COPD), etc.

These examples demonstrate that dental diseases should not be considered in isolation, but as part of a general health system. The management and treatment of dental problems is essential to maintain overall physical and psychological well-being.

Research shows that oral infections can have far-reaching effects on overall human health. Oral infections, especially periodontitis, can provoke systemic inflammation and increase the risk of developing cardiovascular diseases. Inflammation in the oral cavity can activate the immune system and provoke atherosclerosis, which in turn increases the risk of myocardial infarction and stroke[11].

In people with diabetes, blood glucose control may be impaired due to chronic inflammation caused by oral infections. This complicates diabetes management and increases the risk of complications such as diabetic retinopathy and nephropathy. There is a link between periodontitis and rheumatoid arthritis, although the exact mechanisms of this connection are not fully understood. One theory suggests that bacterial infections in the oral cavity can trigger an immune response, which in turn can cause inflammation in the joints and the development of rheumatoid arthritis.

These connections emphasize the importance of maintaining oral health for overall physical well-being[12]. Regular visits to the dentist, proper oral hygiene and preventive measures can help reduce the risk of developing these serious diseases. In addition, collaboration between dentists and doctors of other specialties can help in the early detection and treatment of these related conditions, which ultimately leads to an improvement in the overall health of patients.

There is a strong association between periodontal infections (diseases of the gums and musculoskeletal system of the teeth) and the risk of premature birth and prematurity in pregnant women. Periodontal infections cause inflammatory processes that can trigger the release of inflammatory mediators such as cytokines and prostaglandins into the bloodstream. These mediators can penetrate the placenta and have a negative effect on fetal development.

Inflammatory processes caused by periodontal infections can lead to systemic inflammation in the body of a pregnant woman, which, in turn, can affect the functioning of the placenta and determine the risk of premature birth and prematurity[13].

Disorders of the oral microbiome can increase the likelihood of developing periodontal infections. Studies show that some types of bacteria present in the oral cavity during periodontal diseases can have a negative effect on pregnancy.

Periodontal infections can provoke an increase in the level of bacteria and inflammatory mediators in the blood of a pregnant woman, which can lead to vascular endothelial dysfunction, which increases the risk of developing preeclampsia and hypertensive disorders that can affect the normal development of the fetus.

The study of this connection highlights the importance of maintaining oral health in pregnant women as an integral part of the overall health care of the mother and fetus[14]. Regular visits to the dentist and maintaining a healthy oral cavity can reduce the risk of periodontal infections and related complications during pregnancy.

Researchers suggest that good oral health can help in the management of asthma and other respiratory diseases. Diseases of the oral cavity can lead to chronic inflammatory processes in the oral cavity, which, in turn, can exacerbate inflammation in the respiratory tract[15]. Maintaining a healthy oral cavity can help reduce systemic inflammation and improve control of asthma and other respiratory diseases.

Some studies show that bacterial infections in the oral cavity can increase the risk of developing infections in the respiratory tract. Maintaining a healthy oral cavity can help reduce the number of bacteria that can enter the lungs and cause an exacerbation of respiratory diseases.

Regular dental and gum care can contribute to better respiratory hygiene. This may include cleaning the tongue, which helps reduce the number of bacteria that can cause bad breath and worsen the condition of the respiratory tract. The bacterial composition of the oral cavity can affect the state of the microbiome in the respiratory tract. Maintaining the balance of bacteria in the oral cavity can help reduce the risk of developing dysbiosis in the respiratory tract, which may be associated with exacerbations of respiratory diseases.

Discussion

The role of dentistry in the general medical context extends to the field of disease prevention. Regular visits to the dentist for dental cleaning and professional hygiene help prevent the development of caries and periodontitis. These diseases not only affect oral health but can also be associated with the development of serious general medical problems such as cardiovascular diseases and diabetes[16].

When examining the oral cavity, the dentist can detect signs of systemic diseases such as diabetes, hypertension and even some types of cancer. Early detection of these diseases allows you to start treatment earlier and reduce the risk of complications.

Dentists play a key role in educating patients about proper oral hygiene and healthy habits, such as regular brushing, flossing, and the use of additional dental care products. This helps to prevent the development of many dental problems and related general medical complications.

Dental procedures such as plaque and caries removal help reduce the risk of infections and inflammation in the oral cavity. This is important for overall health, as chronic inflammatory processes can provoke or worsen other diseases in the body[17].

In general, dental prevention plays a key role in maintaining overall human health. Regular visits to the dentist and following the recommendations for oral care help prevent many dental problems and related general medical complications[18].

In-depth collaboration between dentists and general practitioners is a key element for the development and implementation of more integrated approaches to patient health care. The integrated approach allows us to consider the patient as a whole, taking into account both his oral and general health, which helps to identify links between oral and general medical conditions and develop effective treatment strategies[19].

Through closer collaboration, dentists can help general practitioners identify early signs of systemic diseases such as diabetes or cardiovascular disease, which can manifest through changes in the oral cavity. The exchange of information between dentists and general practitioners makes it possible to more fully assess the patient's condition and make informed decisions regarding his treatment and care, which includes the exchange of examination results, medical history and prescriptions[20].

An integrated approach makes it possible to develop more effective prevention strategies, including teaching

patients healthy habits and regular medical examinations, including dental ones[21]. When dentists and general practitioners work together, it promotes more coordinated and targeted treatment, which can improve patient outcomes.

In general, closer cooperation between dentists and general practitioners contributes to improving the quality of healthcare and improving patient outcomes through an integrated approach to their health.

Conclusions

The accumulated data confirm that oral health has a significant impact on the overall physical and psychological well-being of a person. Infections and inflammation in the oral cavity can provoke or worsen various general medical problems such as cardiovascular diseases, diabetes, asthma, rheumatoid arthritis and others. Dental prophylaxis plays a key role in the prevention of many diseases and complications, as well as in the early detection of systemic diseases. Regular visits to the dentist, proper oral hygiene and cooperation between dentists and general practitioners contribute to maintaining overall health. Closer collaboration between dentists and general practitioners allows for the development and implementation of more integrated approaches to patient health care. This includes sharing information, developing joint prevention and treatment strategies, and teaching patients healthy habits. Working on oral health not only helps to prevent the development of dental problems, but also contributes to improving the quality of life of patients in general. The management of dental diseases and the maintenance of a healthy oral cavity are essential for overall physical and psychological well-being. Thus, oral health plays an essential role in the general medical context, and improved interaction between dentists and doctors of other specialties can significantly improve treatment outcomes and the quality of life of patients.

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