Impact Of Coronavirus Infection (Covid-19) On Diabetic Periodontopathies

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ABSTRACT

The article describes the impact of coronavirus infection on patients with diabetes mellitus, treatment of diabetic periodontitis

Keywords: coronavirus infection, COVID-19, diabetes mellitus, periodontal disease, insulin resistance, cardiovascular risk factors.

Relevance. Diabetic periodontopathy is a pathology that often worries patients with diabetes mellitus (DM), as it is not completely cured for a long time, and the addition of a coronavirus infection can lead to serious microcirculatory disorders, which complicates the course of diabetic periodontopathy. Periodontal disease is considered the sixth (after diabetic retinopathy, renal failure, cardiovascular events, acute cerebrovascular accident and lower limb amputation) complication of diabetes. Periodontal disease in DM, as a chronic infectious inflammatory disease, not only leads to impaired attachment of teeth, bone destruction, but can also serve as a gateway for infection in COVID-19. Thus, the relationship between DM and periodontal disease is bidirectional. A review article from a dental pathology perspective highlights fundamental and clinical data on the possible relationship between DM with diabetic periodontitis and COVID-19, recognizing the importance of advancing understanding of immune and inflammatory responses that can alter insulin sensitivity, potentially exacerbating impaired glucose metabolism, which has crucial in setting therapeutic targets and developing effective drugs.

The purpose of the study:

1. To determine the relationship of coronavirus infection (COVID-19) with diabetic periodontitis.
2. Find out the nature of changes in periodontal tissues in diabetes mellitus.
3. To identify possible complications of coronavirus infection (COVID-19) that occur in patients with diabetes mellitus (DM). Материал и методы исследования:

The analysis of scientific literature on this topic has been carried out.

Results of the study and their discussion. We have found that the prevalence of diabetic periodontopathy in patients with DM is very high. Depending on the age groups, the global prevalence of diabetes is about 5% for the 35-39 age group, 10% for the 45-49 age group, 15% for the 55-59 age group, and almost 20% starting from the 65- 69 years old. Diabetes prevalence rates are largely determined by people with type 2 diabetes, who make up about 90% of the total population. These

individuals are characterized by varying degrees of relative insulin deficiency, combined with a wide spectrum of insulin resistance. For 32 years, the number of patients with diabetes mellitus has increased 12 times and by 2021 amounted to 473 million people. Inflammatory periodontal diseases also have a high prevalence and, according to the WHO, make up 80% of the world's population. The frequency of occurrence of periodontal disease in diabetes mellitus ranges from 51% to 98%. Diabetes mellitus gives many complications from periodontal tissues: vascular lesions, bleeding gums, purulent exudate, decreased resistance of periodontal tissues, dystrophy of the alveolar process. One of the most serious disorders in periodontal tissues in diabetes mellitus are vascular disorders. They develop due to spastic changes in blood vessels and capillaries, and the cytokine storm, which is a complication of COVID-19, adversely affects the functioning of the heart and blood vessels, causing their inflammation. and a decrease in the resistance of tissues to microorganisms. Changes in periodontal vessels in diabetes mellitus are so specific that they are referred to by the term "diabetic periodontopathy". The association between DM and increased mortality from COVID-19 may be related to the additional systemic effects of periodontitis. Periodontal disease affects blood sugar levels and weakens the innate immune system. Periodontitis also exacerbates systemic inflammation, as mediators of periodontitis and host tissue destruction (eg, cytokines and metalloproteinases) are released from inflamed periodontal tissue into the circulation. In diabetes mellitus, chronic generalized periodontitis is most common. It arises as a result of violations on the part of the immune system. With periodontitis, vascular disorders of the type of thrombohemorrhagic syndrome are characteristic, which leads to a violation of the trophism of the periodontium and the permeability of the capillary wall. The most severe and characteristic sign of periodontitis in diabetes mellitus is dystrophic changes in the alveolar process with resorption of the interdental septa. This leads to early loss of teeth in such patients. Summarizing the literature data, it should be said that according to modern ideas about these pathologies in patients with diabetes mellitus, microcirculatory disorders, carbohydrate metabolism disorders, bacterial invasion of plaque, as well as changes in the immune system play an important role in the development of periodontal diseases.

Findings

1. Research has found a three-way relationship between diabetes mellitus, periodontal disease, and COVID-19. With uncontrolled diabetes mellitus, vascular disorders occur in periodontal tissues and reduce their resistance. At the same time, inflammation in the periodontal tissues in diabetes mellitus negatively affects the level of glucose in the blood. Accession COVID-19 causes a number of complications in patients with diabetes due to vascular inflammation.

2. The severity of changes in periodontal tissues depends on the severity and duration of diabetes. We found that with a duration of diabetes mellitus of up to 1 year, changes in the peridental tissues were detected in 20% of patients, and with a duration of the disease from 15 to 20 years, in all examined patients.

3. The dentist and diabetologist should advise patients with diabetes to have regular check-ups and oral hygiene procedures. This targeted prevention strategy, with additional recommendations for monitoring and maintaining oral health, could be a quick and easy approach to protecting against the current coronavirus pandemic.

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