

FEATURES OF RHEUMATIC DISEASES IN ELDERLY PATIENTS WITH DIABETES MELLITUS

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Abstract

This article examines the features of the course of rheumatic diseases in elderly patients with diabetes mellitus (DM). The issues of epidemiology, pathophysiological mechanisms of the relationship between these two conditions, clinical manifestations and treatment methods are considered. Particular attention is paid to the importance of an individual and comprehensive approach to therapy, as well as the prevention of possible complications. Current information on the impact of systemic inflammatory processes, elevated uric acid levels and vascular changes on the development of rheumatic pathologies in individuals with DM is provided. The conclusion emphasizes the need for additional research to improve the quality of life of such patients.

Keywords: Rheumatic diseases, diabetes mellitus, old age, comorbidity, osteoarthritis, gout, treatment, systemic inflammation.

Introduction

The high incidence of both rheumatic diseases and diabetes mellitus (DM) among the elderly population makes their joint manifestation a fairly common medical phenomenon. According to the World Health Organization (WHO), approximately every fifth person over 65 suffers from DM, while the risk of developing rheumatic diseases in this age group increases significantly.

The aim of this review was to systematize and critically analyze modern studies devoted to the study of the influence of diabetes mellitus on the development of rheumatic diseases in elderly patients.

Material and methods of the study The following databases were used to search for relevant articles: PubMed, Web of Science, Scopus and Google Scholar. The keywords for the search were "diabetes mellitus", "rheumatic diseases", "elderly patients", "microcirculation", "hypoglycemia". Articles published in the last 10 years, written in English and representing original research or reviews were included.

At the initial stage, a keyword search was conducted, after which duplicate records were excluded from the general list. Then, a selection was made by titles and abstracts to determine compliance with the inclusion criteria. After that, a full text screening was performed on the remaining articles. The quality of each article was assessed using a standardized scale, taking into account such





parameters as methodological correctness, statistical significance of the results, and relevance of the topic.

Information from the selected articles was systematized and presented in the form of tables and graphs. The main focus was on the results of studies concerning the pathogenetic mechanisms of interaction between diabetes mellitus and rheumatic diseases, as well as the clinical features of their joint course in elderly patients. For qualitative analysis, the content analysis method was used, allowing to identify general trends and contradictions in the presented data.

Results and discussion of our own results The most common rheumatic diseases in elderly people with diabetes are osteoarthritis, rheumatoid arthritis and gout. Obesity, which is accompanied by insulin resistance, is a common risk factor for both types of diseases. Studies show that the presence of diabetes increases the likelihood of developing osteoarthritis by 30-50% compared to patients without diabetes. In addition, gout, which is associated with elevated levels of uric acid in the blood, is observed in patients with diabetes 1.5-2 times more often.

It should be emphasized that the combination of rheumatic diseases with diabetes mellitus negatively affects the overall prognosis of the patient, increasing the risk of disability and reducing the quality of life. This confirms the relevance of an in-depth study of the interactions between diabetes mellitus and rheumatic diseases in elderly patients.

The comorbidity of diabetes mellitus and rheumatic diseases in the elderly is determined by complex pathophysiological processes, including systemic inflammation, metabolic disorders, and degenerative changes. These factors enhance the clinical picture of pathologies and complicate treatment measures.

In diabetes mellitus (DM) type 2, chronic systemic inflammation is observed, caused by increased activity of proinflammatory cytokines, such as interleukin-6 (IL-6) and tumor necrosis factor alpha (TNF- α). These inflammatory mediators contribute to the development of inflammatory reactions in the joints, which accelerates the progression of osteoarthritis (OA) and rheumatoid arthritis (RA). In addition, insulin resistance, characteristic of DM, aggravates the inflammatory response, creating a vicious cycle.

Elevated blood glucose levels in patients with diabetes mellitus (DM) contribute to the formation of advanced glycation end products (AGEs), which lead to structural changes in the collagen fibers of joint tissues. This causes a decrease in the elasticity of cartilage tissue, increases its fragility and increases the risk of degenerative processes, especially in the elderly.

Diabetic microangiopathy, which develops in patients with diabetes mellitus (DM), has a negative effect on the blood supply to the joints and surrounding tissues. This condition leads to increased hypoxia and disruption of tissue recovery processes. Such changes worsen the overall clinical picture of rheumatic diseases, increase the frequency of exacerbations and complicate the healing of damaged tissues.

The purine metabolism disorders that are common in patients with diabetes lead to elevated uric acid levels in the blood, a condition known as hyperuricemia. This significantly increases the risk of developing gout. In the presence of insulin resistance, the kidneys are less able to excrete uric acid, which stimulates the formation of sodium urate crystals in the joints. This leads to acute inflammatory attacks that are accompanied by severe pain and swelling.





In older patients, degeneration of joints and periarticular tissues occurs more intensively due to the natural decrease in the body's ability to recover. The process of collagen glycation and cartilage calcification is enhanced by diabetes, which accelerates the progression of osteoarthritis. This further aggravates the symptoms and reduces the effectiveness of traditional treatments.

Thus, the interaction of diabetes and rheumatic diseases is a complex of metabolic and inflammatory processes that require special attention when choosing a treatment strategy.

Based on the presented data, it can be **concluded** that the comorbidity of diabetes mellitus (DM) and rheumatic diseases in elderly patients is a serious medical problem that requires a comprehensive approach to diagnosis and treatment. Osteoarthritis, rheumatoid arthritis and gout are the most common rheumatic diseases in patients with DM, with obesity and insulin resistance playing a key role in the development of these pathologies. The presence of DM significantly increases the risk of developing osteoarthritis and gout, which negatively affects the general health of patients, increasing the risk of disability and reducing the quality of life.

The pathophysiological mechanisms underlying the interaction of diabetes and rheumatic diseases include chronic systemic inflammation, increased activity of proinflammatory cytokines, impaired microcirculation and metabolic processes, which aggravate the course of rheumatic pathologies. Diabetic microangiopathy worsens the blood supply to the joints, leading to hypoxia and delayed tissue recovery. Metabolic disorders, such as hyperuricemia, contribute to the development of gout and acute inflammatory episodes. In addition, the processes of collagen glycation and cartilage calcification, accelerated by the presence of diabetes, increase joint degeneration, especially in elderly patients.

Thus, the combination of diabetes and rheumatic diseases requires the development of individual treatment approaches aimed at controlling glucose levels, correcting metabolic disorders and reducing the inflammatory response. Further research should focus on studying effective methods for the prevention and treatment of these conditions, as well as improving the quality of life of patients.

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