BLOOD LIPID INDICATORS DURING BASIC THERAPY FOR EARLY RHEUMATOID ARTHRITIS

Solikhov B.M.

Tashkent State Medical University

Abstract

Objective: To study blood lipid metabolism disorders in patients with early rheumatoid arthritis (RA) undergoing basic therapy. Materials and methods: The study involved 80 patients divided into 2 groups receiving antirheumatic treatment. The first group of 40 patients was prescribed leflunomide 20 mg/day as basic treatment. The second group was prescribed leflunomide 20 mg/day as basic therapy plus rosuvastatin 20 mg/day. Patients underwent tests for CRP (C-reactive protein), ESR (erythrocyte sedimentation rate), blood lipid profile, RF (rheumatoid factor), and anti-CCP (anti-cyclic citrullinated peptide antibodies). Results: Compared to the 1st group, the 2nd group showed significant decreases in levels of CRP, ESR, low-density lipoproteins (LDL), total cholesterol (TC), and triglycerides (TG). An increase in antiatherogenic high-density lipoproteins (HDL) was observed. Conclusion: The combined use of basic therapy and statins led to decreased arthritis activity in rheumatoid arthritis and normalization of CRP and ESR indicators.

Keywords: rheumatoid arthritis, atherosclerosis, basic therapy, rosuvastatin, atherogenic, dyslipidemia, diagnostics.

Rheumatoid arthritis (RA) is a disease of unknown etiology with an immune-inflammatory nature, characterized by the development of chronic erosive arthritis and systemic damage to internal organs, affecting patients' quality of life and life expectancy. The main goal of treating rheumatoid arthritis is to achieve disease remission and improve patients' quality of life. However, in patients with rheumatoid

arthritis treated with disease-modifying antirheumatic drugs (DMARDs) and biological preparations based on genetic engineering, remission is achieved only in 20-40% of cases, and the majority of patients do not achieve complete remission from the disease. In developed countries, rheumatoid arthritis occurs in 0.5% to 1.8% of the population (up to 5% in the elderly). Annually, on average, 5 to 50 people per 100,000 population are diagnosed with rheumatoid arthritis. Among them, women are five times more prevalent than men. From the early stages of rheumatoid arthritis, changes in blood lipid metabolism indicators can be detected in patients [1,3].

The primary cause of death in patients with rheumatoid arthritis is cardiovascular system pathology, in which atherosclerosis and its associated complications play a crucial role. Currently, the similarity between the developmental mechanisms of atherosclerosis and rheumatoid arthritis has been established. Numerous scientific studies demonstrate the pathogenetic unity of these conditions. Both diseases are immuno-inflammatory in nature, indicating an intricate connection in their progression and opening up new therapeutic possibilities for treatment. Several studies have shown that the development and course of rheumatoid arthritis are linked to blood lipid parameters, with disease progression characterized by increased atherogenicity. Concurrently, adequate anti-inflammatory therapy leads not only to a reduction in rheumatoid arthritis activity but also to a decrease in the atherogenicity coefficient [4,7].

There are varying perspectives on the role of rheumatoid arthritis activity in predicting atherosclerotic vascular damage. The presence of ACPA or rheumatoid factor in the blood plasma of patients with rheumatoid arthritis (seropositive arthritis) increases the likelihood of vascular complications. Additionally, the concentration of C-reactive protein in the blood plasma is considered an important prognostic indicator.

Hudson N. and Dorum S. have identified several factors associated with atherosclerotic vascular damage in rheumatoid arthritis that lead to adverse cardiovascular outcomes. These include: the co-occurrence of classical cardiovascular disease risk factors, side effects of medications used in the treatment of rheumatoid arthritis, and insufficient attention given to the prevention of cardiovascular complications in rheumatoid arthritis [8, 9, 10].

Lipid parameters in the blood serum of patients with rheumatoid arthritis have not yet been sufficiently studied. Specifically, the subfractional spectra of total and modified lipid indicators have not been examined at all, which is crucial for the prognosis of autoimmune diseases. Therefore, investigating lipid parameters in patients with rheumatoid arthritis is of great interest and will allow us to more accurately describe the pathogenesis of rheumatoid arthritis and the immunopathogenesis of atherosclerosis in general [11,12].

Currently, there are different views on the duration of the early stage of rheumatoid arthritis. Many authors emphasize that this includes a period ranging from several months to several years. Some authors classify the first 3 months of the disease as a very early stage. Scientific research conducted within the framework of the problem of early arthritis is primarily devoted to solving two closely related problems. Firstly, the possibilities of making a reliable diagnosis are being studied, and secondly, approaches to determining the optimal treatment method for a certain period of the disease are being developed. The complexity of treatment methods based on basic therapy plays an important role in solving this problem. The use of statins against the background of basic therapy in patients with RA significantly accelerates the recovery time, and also contributes to the prevention of cardiovascular diseases.

The first studies on the use of statins in rheumatology were experimental in nature: in mice, collagen arthritis was used as a classic model, and the disease activity was significantly reduced due to simvastatin [14]. The current classic TARA

study showed that atorvastatin at a dose of 40 mg per day significantly reduces the level of C-reactive protein and notably inhibits the inflammatory process in the joints (using standard rheumatological indicators) [15]. Thus, diagnosing lipid metabolism disorders in patients with rheumatoid arthritis is one of the most pressing issues. Timely diagnosis of lipid metabolism disorders leads to a reduction in cardiovascular system pathology in patients with rheumatoid arthritis. The use of statins in complex therapy has a normalizing effect on the clinical and laboratory indicators of pathological process activity in patients with rheumatoid arthritis.

Objective: To study blood lipid metabolism disorders in patients with early rheumatoid arthritis undergoing basic treatment.

Research materials and methods. 80 patients with a confirmed diagnosis of rheumatoid arthritis were examined according to the EULAR/ACR criteria. The age range of patients was 18 to 60 years. Clinical examination of patients consisted of: collecting medical history, identifying complaints, and conducting an objective examination. Joint condition was assessed in patients with RA: patients' health was evaluated using the HAQ index, and the duration of morning stiffness and the degree of joint functional insufficiency were determined. The severity of joint pain and overall condition were assessed using a visual analogue scale (VAS). RA activity was evaluated using the DAS 28 scale to determine the general activity index. Laboratory studies included a clinical blood test, total cholesterol, triglycerides, low-density lipoproteins (LDL), high-density lipoproteins (HDL), anti-CCP, and C-reactive protein.

Antirheumatic treatment was administered to patients divided into 2 groups. The first group, consisting of 40 patients, was prescribed leflunomide 20 mg/day as a basic treatment. The second group of patients was prescribed leflunomide 20 mg/day as basic therapy, with the addition of rosuvastatin 20 mg/day. The results underwent statistical analysis.

Results: Women predominated among the examined patients (84%), with a ratio of women to men of 5:1. When analyzing patients by age, the highest percentages in both groups combined were 38% in the 30-40 age range, 27% in the 20-30 age range, and 22% in the 40-50 age range. This indicates that the early stages of the disease were more common in middle age. According to the study results, seropositivity was detected in 79% of patients, and 31% of seropositive patients had a disease duration of 3 months. Rheumatoid factor (RF) was detected in 48% of cases in patients with rheumatoid arthritis (RA) duration up to 6 months. In the majority of patients with RA, anti-citrullinated protein antibodies (ACPA) were detected (78%). According to the Health Assessment Questionnaire (HAQ) index, the quality of life of patients in both groups improved after treatment. Notably, patients in the second study group experienced significantly greater ease in performing initially difficult exercises and movements due to hypolipidemic therapy compared to patients in the first group. In the group receiving additional hypolipidemic therapy alongside the baseline treatment, the level of total cholesterol decreased by 24% at 6 months and by 27% at 12 months compared to the baseline. Changes in other atherogenic lipoproteins (triglycerides and LDL) during 6 and 12 months (triglycerides decreased by 47% at 6 months and 52% at 12 months; LDL decreased by 50% at 6 months and 55% at 12 months) showed a statistically significant difference ($P<0.001$) relative to the initial indicators. It was found that the amount of HDL, beneficial for the human body, increased at 6 and 12 months. This led to a reduction in the risk of cardiovascular (CV) complications in RA patients undergoing rosuvastatin basic therapy. Laboratory studies showed that indicators of inflammatory activity decreased in the group receiving hypolipidemic therapy. In the second group, as a result of rosuvastatin's active anti-inflammatory effect, a decrease in the CRP level by 54% after 6 months and by 69% after 12 months of treatment was observed. The decrease in CRP and ESR levels was achieved due to the effective action of rosuvastatin. According to scientific

literature, statins have an anti-inflammatory and antiproliferative effect, as well as the ability to reduce inflammatory cytokines. For this reason, patients with reduced blood atherogenic lipid levels experienced positive changes in their general condition: a decrease in the number of inflamed and painful joints, reduced morning stiffness, and an improvement in the patient's self-care ability.

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