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Rheumatoid arthritis – symptoms, diagnosis, treatment

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SUMMARY

Rheumatoid arthritis is a systemic autoimmune disease of connective tissue of unknown etiology. Specific for it is the involvement of symmetrically small and medium-sized joints, leading to degradation of their structure, stiffening and muscle contractures. It is also characterized by extra-articular and generalized symptoms, such as fatigue, low-grade fever and sweating. It can occur with or without elevated RF and / or ACPA antibodies, causes disability and contributes to premature death. Drugs for this disease can be categorized into disease-modifying drugs as well as glucocorticosteroids and non-steroidal anti-inflammatory drugs. The first-line drug is methotrexate. In case of ineffectiveness of the treatment, biological treatment can be started.

KEY WORDS: rheumatoid arthritis, methotrexate

INTRODUCTION AND PURPOSE:

Rheumatoid arthritis is a chronic, inflammatory disease that affects joints and various organs. It is one of the most common rheumatic diseases. In Europe and the US, it affects 0.5–2% of the population over the age of 15, and the incidence ranges from 31 to 50 people per 100,000. [2] It is a connective tissue disease characterized by inflammation of mainly small and medium-sized joints. It is characterized by a course with periods of remissions and exacerbations. If left untreated, the disease leads to joint damage, deformation, contractures and reduced mobility. Consequently, it leads to a reduction in the quality of life, disability and premature death. It is one of the most common causes of disability. The cause of the disease is an inflammatory process inside the joint. The factor that initiates the inflammatory response is unknown.

DESCRIPTION OF THE STATE OF KNOWLEDGE:

Rheumatoid arthritis begins with the involvement of the joint's synovium, which thickens, limiting the joint's mobility over time. There are bone changes such as periarticular osteoporosis and osteophytes. At a later stage, muscle atrophy in the area of the affected joint occurs, as well as damage to tendons and ligaments [3]. The risk factors include: genetic predisposition, defects of the immune system, gender (women get sick three times more often than men), previous infections - disturbing the immune system, smoking and stress. Adverse prognostic factors for RA according to EULAR 2016 include: moderate or high disease activity after conventional synthetic disease-modifying drugs, high levels of inflammatory parameters, a large number of swollen joints, the presence of RF or ACPA - especially in high titers, a combination of factors 1-4 , failure of treatment with two or more conventional synthetic disease-modifying drugs, early presence of erosions. [1] The general symptoms of RA include: fatigue, muscle pain, low-grade fever, sweating, and loss of appetite with weight loss. This disease typically affects the joints symmetrically. There is pain and the morning stiffness characteristic of rheumatoid arthritis, which usually lasts over an hour. The affected joint is swollen and painful to pressure. The most commonly involved joints are the metacarpophalangeal and proximal interphalangeal joints. There is a restriction of mobility, deformation, as well as rheumatoid nodules visible above the affected joints. They can also be located subcutaneously or in internal organs. The disease may also involve the joints: elbow, brachial, shoulder-clavicular, metatarsophalangeal, ankle, hip, knee and spine joints. The activation of inflammatory processes accelerates the development of atherosclerotic lesions. In RA patients, the risk of heart failure, stroke or infarction is 2–3 times higher than in healthy subjects. The disease itself and the steroids used in its course accelerate the development of osteoporosis. Patients also have an increased risk of pleurisy and interstitial pneumonia. Carpal tunnel syndrome and dry eye are more common. Complication of drugs used is also interstitial nephritis, pyelonephritis. The diagnosis of RA is based on the 2010 ACR and EULAR criteria presented below:

Joint involvement	Points
1 large	0
2-10 large	1
1-3 small	2
4-10 small	3
>10 joints (1 small included)	5
Serology	
Negative RF and negative ACPA	0
Low-positive RF or low-positive ACPA	2
High-positive RF or high-positive ACPA	3
Acute-phase reactants	
Normal CRP and normal ESR	0
Abnormal CRP or abnormal ESR	1
Duration of symptoms	
<6 weeks	0
≥6 weeks	1

We are confident in the diagnosis of RA when the total score is 6 or more.

Important biochemical tests that should be performed in a patient during the treatment of this disease are: urea, creatinine, urinalysis, and liver enzymes. They allow us to exclude chronic kidney disease, which may occur during long-term RA, and to assess the condition of the liver, which may worsen as a result of the treatment of rheumatoid arthritis. CRP is an important parameter determining the activity of the disease, its level allows to determine the effectiveness of treatment. Radiological examinations are also necessary to visualize the changes characteristic of the course of this disease. X-ray, ultrasound, CT and MRI are performed. The advancement of the disease can be divided into 4 periods according to Steinbrocker:

- Stage I - introductory: thickening of the contours of the joints, morning stiffness, pain and swelling. radiographic signs of articular osteoporosis, swelling of soft tissues, slight narrowing of the joint space
- 2nd period - moderate changes: as above + additionally: muscle atrophy in the vicinity of the affected joints, limited mobility, nodules, tendinitis. Radiologically clear joint space narrowing, geodes
- 3rd period - severe changes: as above + additionally: erosions of articular surfaces, generalized muscle atrophy, subluxation, joint deformities
- IV period - declining phase: as above + additionally: bone or fibrous joints. Complete stiffening of the joint

The goal of treatment is to achieve clinical remission or at least low disease activity. Therapy should be started as soon as the disease is diagnosed. When establishing a treatment strategy, the EULAR recommendations, poor prognostic factors and the principles of using biological drugs within drug programs should be taken into account [4]. Disease activity should be assessed consecutively 3 and 6 months after starting treatment, taking into account poor prognostic factors. They are: positive RF and / or ACPA, especially in high titer, moderate or high disease activity, early onset of erosions, treatment failures with 2 or more disease-modifying drugs, a large number of swollen joints. If clinical improvement is not achieved after 3 months, treatment should be modified or changed. The same is

true if the treatment goal is not achieved after 6 months of treatment [5]. The Disease Activity Score (DAS) is usually used to assess the activity of RA. [6] The result is calculated using a calculator taking into account: swollen joint count, painful joint count, ESR or CRP, overall assessment of disease activity by the patient according to a visual analog scale (VAS, 0-100). You can also use the SDAI scale, which takes into account the same joints as the DAS28, but does not require a calculator or CDAI (Clinical Disease Activity Index). ACR / EULAR remission criteria include all criteria met or SDAI remission: painful joint count 1 or less, swollen joint count 1 or less, CRP less than or equal to 1 mg / dL, patient overall VAS assessment of disease activity (0-10) 1 or less. We can also use the NRS numerical pain scale, the HAQ questionnaire for disability assessment, and the SF-36 questionnaire for quality of life to assess disease activity. [6] Drugs used in RA can be divided into disease-modifying drugs and drugs with analgesic and anti-inflammatory properties. Disease-modifying drugs are divided into conventional drugs, including: methotrexate, leflunomide, sulfasalazine, hydroxychloroquine, chloroquine, gold salts, and targeted drugs: tofacitinib, baricitinib, and Upadacitinib. The biological drugs are mainly adalimumab, anakinra, etanercept, rituximab, adalimumab and infliximab. The first-line drug in patients with active RA is methotrexate [5]. It can be used alone or in combination with other drugs in this class. In case of contraindications, leflunomide or sulfasalazine can be selected. If we are dealing with low disease activity, we should start with hydroxychloroquine [6]. In the initial phase of treatment, the addition of glucocorticoids may be considered, but should be discontinued as soon as possible. If the above-mentioned treatment is not effective, biological drugs should be used in combination with methotrexate. Treatment is continued after remission or low disease activity is achieved. In case of permanent remission, reducing the dose of disease-modifying drugs may be considered [4].

CONCLUSIONS:

If left untreated, rheumatoid arthritis can quickly lead to disability. The drug of first choice is metrotexat. It can be used on its own or in combination with another disease-modifying drug. Glucocorticoids may be added at the initial stage of treatment, but they should be discontinued as soon as possible. If the first-line treatment fails, biological treatment can be used. We expect improvement in the clinical condition 3 months after the start of therapy. Then the patient's condition is assessed. If no improvement is obtained, treatment should be changed or modified. We use DAS, SDAI, CDAI scales or ACR / EULAR remission criteria to assess disease activity. The patient's assessment of disease activity using the VAS or NRS pain scales, assessment of the quality of life using the SF-36 questionnaire, and the assessment of disability using the HAQ questionnaire are also important.

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