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MORPHOLOGICAL CHANGES IN THE THICKNESS OF THE INTIMA-MEDIA OF THE CAROTID ARTERIES IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Abstract

This study investigates the morphological changes in the intima-media thickness (IMT) of carotid arteries in patients with rheumatoid arthritis (RA). RA is an autoimmune disease that not only affects joints but also has systemic implications, including cardiovascular complications. Increased IMT is a significant predictor of cardiovascular events and may indicate early atherosclerosis. The study included 60 patients diagnosed with RA, who underwent high-resolution ultrasound to measure IMT. The results indicated a significant increase in IMT compared to healthy controls, correlating with disease duration and activity. These findings emphasize the importance of monitoring carotid artery changes in RA patients to enable early detection of cardiovascular risks and implement timely interventions.

Keywords: intima-media thickness, rheumatoid arthritis, carotid arteries, cardiovascular risk, ultrasound.

Relevance

Rheumatoid arthritis (RA) is a chronic inflammatory autoimmune disorder primarily known for its effects on joints.[3] However, its systemic implications, particularly regarding cardiovascular health, have gained significant attention in recent years. Patients with RA are at a markedly increased risk of cardiovascular disease (CVD), with studies indicating that their likelihood of experiencing

cardiovascular events is two to three times higher than that of the general population. [6]

One critical aspect of this increased risk is the alteration of vascular structure, specifically the intima-media thickness (IMT) of the carotid arteries. Increased IMT is recognized as a key indicator of early atherosclerosis and serves as a predictive marker for cardiovascular events. The chronic inflammation associated with RA can lead to morphological changes in the vascular system, promoting thickening of arterial walls and contributing to atherosclerotic processes. [2]

Understanding the relevance of studying IMT in RA patients is essential for several reasons. Firstly, identifying changes in IMT can facilitate early detection of cardiovascular risks, allowing for timely interventions. Early monitoring can significantly improve patient outcomes and reduce morbidity associated with cardiovascular complications. [7]

Moreover, examining the relationship between disease activity, duration, and IMT can provide insights into the mechanisms linking RA with cardiovascular disease. This knowledge can inform the development of targeted therapeutic strategies aimed at mitigating cardiovascular risk in this high-risk population. [8]

Additionally, given that cardiovascular health is often overlooked in the management of RA, integrating regular cardiovascular assessments into standard care protocols can enhance overall patient management. By emphasizing the importance of monitoring carotid artery changes in RA patients, healthcare providers can promote proactive strategies that improve both joint and cardiovascular health, ultimately enhancing the quality of life for these individuals. [4]

Aim

The primary aim of this study is to evaluate the morphological changes in intima-media thickness (IMT) of carotid arteries in patients with rheumatoid arthritis and to determine the correlation between IMT and disease activity.

Materials and Methods

The study selected 385 patients aged 35 to 70 who were treated in a stationary setting with rheumatoid arthritis diagnosis in 2021 in the Rheumatology Department of the Bukhara region Multidisciplinary Medical Center. The diagnosis of rheumatoid arthritis was made based on the ACR (1987) and ACR/EULAR (2010) criteria. When examining the history of the disease, attention was paid to the following information: the age of the patient, the nature of the disease, its duration, the presence of complications during the disease, the type and effectiveness of the previous treatment, the factors contributing to the onset of the disease were analyzed in detail. In determining the frequency of occurrence of cardiovascular risk factors in patients with rheumatoid arthritis, heredity, anemia, stress states, alcohol consumption, smoking, obesity, hypercholesterolemia (GXS), abdominal obesity (AS), frequency of occurrence were also assessed.

Disease activity levels were assessed based on DAS-28 - (Disease Activity Score) indicators. The mSCORE (SCORE/EULAR) scale was used in early detection and prognosis of cardiovascular risk.

Results

Conclusions and judgment. According to research analysis, 321(83.4%) of the affected patients were female and their average age was 51.7±8.78, while 64(16.6%) were male with an average age of 54.3±8.46. It was noted that 83(21.6%) of the patients in the study were aged 35-44, 91(23.6%) were aged 45-50, 67(17.4%) were aged 51-55, and 65(16.9%) were aged 56-60, and 79(20.5%) were aged 61-70

Conclusions

This study highlights significant morphological changes in the intima-media thickness (IMT) of carotid arteries in patients with rheumatoid arthritis (RA). The results indicate that RA patients exhibit increased IMT compared to healthy controls,

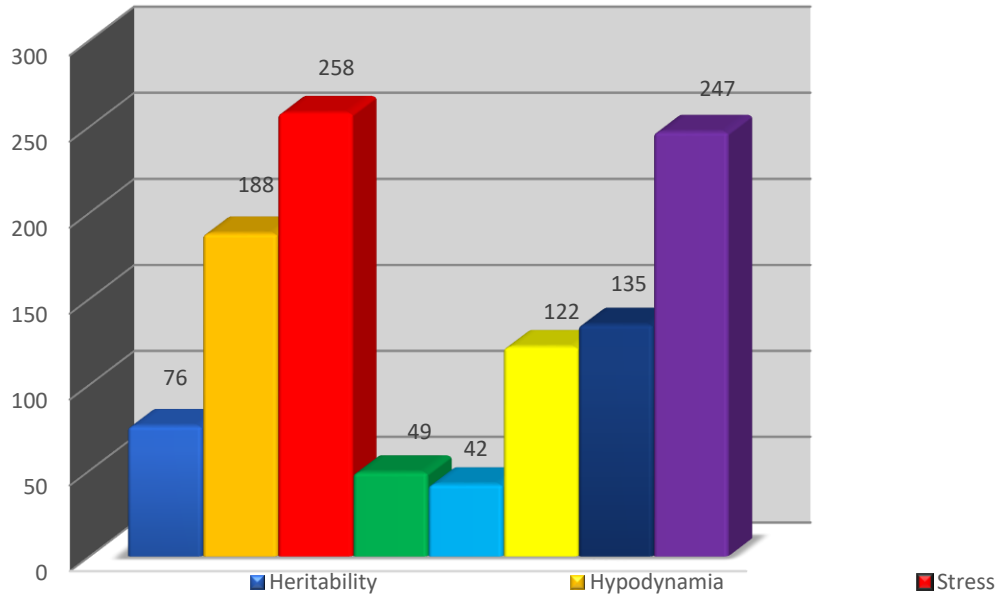
underscoring a heightened risk for cardiovascular disease. The positive correlations found between IMT, disease duration, and disease activity (DAS28 scores) suggest that ongoing inflammation plays a crucial role in vascular alterations.

Disease and life Anamnesis of patients in the research process, general examination results, complex laboratory tests (general blood analysis, general urine analysis, rheumatic factor determination, s-reactive protein (SRO), antistreptolysin-O, STSPA –cyclic citrullinated peptide antibodies, blood biochemical analysis: bilirubin, Alt, ast, sugar content, mochevina, creatinine content; lipid spectrum, coagulogram and instrumental examinations (ECG, exocardiography, sleep artery dopplerography, radiography of vapors) were taken into account. Also used were DAS-28 index, vash as well as mSCORE (SCORE/EULAR) scales.

The disease activity level was assessed using the DAS -28 index. DAS - 28-disease intensity index (Disease Activity Score) is the only tool in which several discrete values are combined to assess the severity of the disease, and is used in research and in Real practice to assess rheumatoid arthritis activity. DAS - 28 index key components in monitoring disease activity include: number of painful and swollen joints (OBS and SHBS), erythrocyte deposition rate (ECHT), C-reactive protein (CPO), visual analog scale (vash) overall patient health assessment

On the DAS - 28 index, 181(47 %) patients were found to have II-medium activity and 193(50.2%) patients to have III-high activity levels

According to a scientific study, the incidence of cardiovascular risk factors among patients with PA when analyzed was 76 (19.7%) heredity, hypodynamia 188(48.8%), stress cases 258 (67 %), alcohol consumption 49 (12.7%), smoking 42(10.9%), obesity 122 (31.7%), hypercholesterolemia 135(35.1%), AG 247 (64.1%) identified in patients



These findings emphasize the importance of routine cardiovascular assessments in RA patients to facilitate early detection of vascular changes and timely interventions. Monitoring IMT can serve as a valuable tool for healthcare providers to stratify cardiovascular risk, enabling more targeted management strategies aimed at reducing morbidity associated with cardiovascular complications.

As the majority of patients in the study were women (83.4%), smoking accounted for 10.9% and alcohol consumption was 12.7%. Women in the study showed hereditary predisposition, hypodynamics, stress States, hypercholesterolemia, arterial hypertension, high rates compared to men.

In patients with rheumatoid arthritis, when risk factors were analyzed in relation to age, stress States were found to be higher in 35-44 and 45-50 years old, while AG and GXS were seen to be more widely abandoned compared to the remaining group of patients in 51-55 and 61-70 years old

In light of the elevated cardiovascular risk in this population, integrating regular cardiovascular evaluations into the standard care protocols for RA patients is essential. This proactive approach can enhance overall patient management and improve quality of life by addressing both joint and cardiovascular health.

Further research is warranted to explore the underlying mechanisms of these changes and to evaluate the impact of targeted therapies on improving cardiovascular outcomes in individuals with rheumatoid arthritis.

The mscore (SCORE/EULAR) scale was used for early detection of the risk of cardiovascular disease in PA patients.

In this case, low and high risk levels were developed using data of patients such as age, gender, total cholesterol levels in the blood, systolic blood pressure (SQB), smoking. the mSCORE (SCORE/EULAR) scale is calculated for each patient, on this scale there are special cells separated by separate colors and numbers, which are designed to assess the risk of death from cardiovascular diseases for 10 years.

On the SCORE scale, the overall risk level of Infectious Diseases is assessed as follows:

Low risk below 1% ;

Average risk ≥1 to-5% ;

High risk ≥5dan-10%;

Extreme risk ≥10%.

According to the results, the low risk was 132 (34.3 %), the average risk was 172 (44.7%), the high risk was 50 (13.0%), and the extreme high risk was 31 (8.1%).

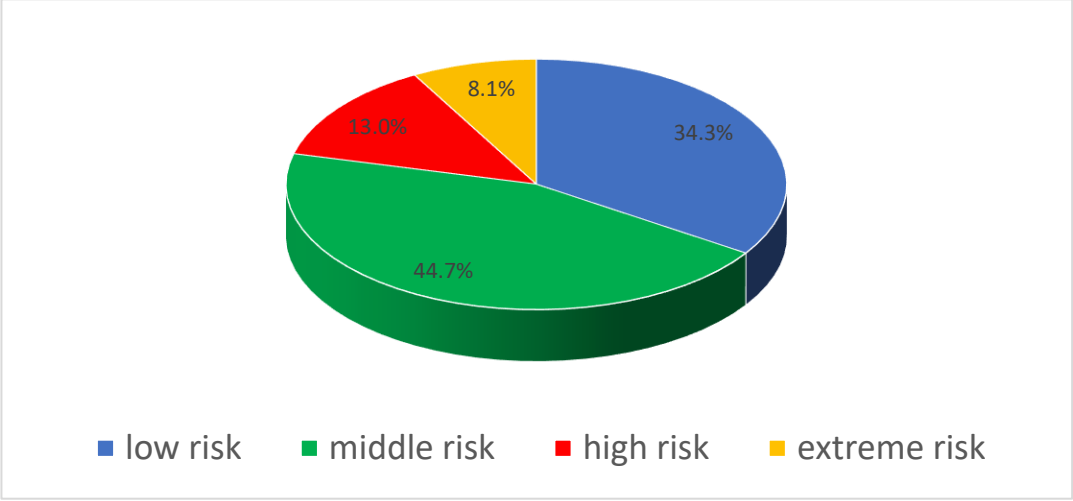


Figure 3. Cardiovascular risk in patients with PA on the SCORE scale

When analysed the correlation of cardiovascular risk rates in patients with PA with age on the SCORE scale, the highest rates were low risk 91.6% in patients aged

35-44, 70.1% in patients aged 51-55, and high risk 29.1% and extreme risk 22.8% in patients aged 61-70 (Table 3).

According to the results of the analysis, the extreme risk was observed in patients aged 51-55, 56-60 and 61-70, showing 1.5 times higher rates in patients aged 61-70 than in patients aged 56-60, and 5 times higher in patients aged 51-55. While the higher risk was aniclated to be 1.7 and 1.5 times higher in 61-70-year-olds of patients with PA compared to 56-60-year-olds and 51-55-year-olds.

An age analysis of this indicator showed that patients aged 51-55, 56-60, and 61-70 had a more reliable average risk, high risk, and extreme risk, and substantiated its use in the health primary system from the mSCORE (SCORE/EULAR) scale to assess cardiovascular risk in patients with PA.

Thus, by correcting risk factors, it is possible to achieve early prevention of diseases, reducing disability and death. Heart attacks can be prevented when correction begins early. Also, adequate correction of risk factors is equally effective in all stages of the disease, even after complications arise. The use of the international mscore (SCORE/EULAR) scale, which determines the level of cardiovascular risk by determining risk factors, in the primary branch of medicine increases the effectiveness of work on this.

Literature

1. Саидова М. М., Камилова У. К. Сердечно-сосудистый риск по шкале MSCORE у больных ревматоидным артритом //Евразийский кардиологический журнал. – 2019. – №. S1. – С. 381.
2. Саидова М. М., Камилова У. К. Анализ встречаемости кардиоваскулярной коморбидности у больных ревматоидным артритом //Артериальная гипертония 2017 как междисциплинарная проблема. – 2017. – С. 41-42.
3. Саидова М. М., Хамроева Ю. С. Cardiovascular risk in patients with systemic scleroderma //Новый день в медицине. – 2020. – №. 1. – С. 367-370.

4. Saidova M., Kamilova U., Yusupaliev B. GW29-e1132 Evaluation cardiovascular risk indices in patients with rheumatoid arthritis //Journal of the American College of Cardiology. – 2018. – Т. 72. – №. 16S. – С. C216-C216.

5. Fomicheva O. A. et al. Factors of Progression and Occurrence of Atherosclerosis in Rheumatoid Arthritis //Kardiologiia. – 2021. – Т. 61. – №. 1. – С. 12-21.

6. Kamolidinovna T. Z., Zikriyaevna S. G. RISK FACTORS AND FEATURES OF CORONARY HEART DISEASE IN PATIENTS WITH RHEUMATOID ARTHRITIS //JOURNAL OF BIOMEDICINE AND PRACTICE. – 2022. – Т. 7. – №. 6.

7. Ҳамроева Ю. С., Саидова М. М. Тизимли Склеродермияли Беморларда Юрак-Қон Томир Тизимида Кузатиладиган Хавфни Прогнозлаш //SCIENTIFIC JOURNAL OF APPLIED AND MEDICAL SCIENCES. – 2022. – Т. 1. – №. 3. – С. 15-18.

8. Таирова З. К. и др. ОЦЕНКА КАРДИОВАСКУЛЯРНОГО РИСКА У БОЛЬНЫХ РЕВМАТОИДНЫМ АРТРИТОМ //VOLGAMEDSCIENCE. – 2021. – С. 198-200.

9. Хамроева Ю. С. и др. ИЗУЧЕНИЕ СПОСОБОВ ИЗБАВЛЕНИЯ ОТ ПАРАЗИТОВ ДОПОЛНИТЕЛЬНЫМИ МЕТОДАМИ //Ученый XXI века. – 2016. – №. 9 (22). – С. 10-12.

10. Кодирова Ш. и др. Особенности диагностики и лечения ревматоидного артрита, начавшегося в пожилом возрасте //Журнал проблемы биологии и медицины. – 2012. – №. 1 (68). – С. 74-76.