ANTIBODIES TO CARBAMYLATED PROTEINS AS A BIOMARKER OF RHEUMATOID ARTHRITIS ACTIVITY

Xadjimatova I.Kh., Karimov M.Sh.

Tashkent State Medical University, Tashkent, Uzbekistan

E-mail: xajimatova92@mail.ru

https://orcid.org/0009-0003-2435-4890

Abstract. Antibodies to carbamyl proteins (anti-CarP) are considered a promising immunological biomarker for rheumatoid arthritis. Their detection is associated with increased inflammatory process activity, a more severe course of the disease, and the development of erosive changes in the joints. The special clinical significance of antibodies to carbamyl proteins (anti-CarP) is due to the possibility of their detection in patients with seronegative rheumatoid arthritis, which significantly expands diagnostic potential. It has been established that the presence of these autoantibodies is associated with an unfavorable functional prognosis and an increase in the progression of structural joint lesions. In this regard, anti-CarP can be considered a promising tool for early diagnosis, risk stratification, and prognosis of rheumatoid arthritis.

Key words: rheumatoid arthritis, (anti-CarP), disease activity, autoantibodies.

Objective: to study the relationship between the activity of the inflammatory process in the joints and the elevation of anti-CarP in rheumatoid arthritis patients.

Materials and methods: The study was conducted at the 3rd Clinic of the Rheumatology Department of TSUL and the National Medical Center. The material for the study was 50 patients with rheumatoid arthritis symptoms aged 40 to 76 years. The patients had previously been diagnosed with rheumatoid arthritis. The study was conducted based on the collection of complaints, medical history (anamnesis morbi, anamnesis vitae), examination of the patient's medical history, general blood analysis, determination of common inflammatory markers such as C-reactive protein, rheumatoid factor, determination of general blood analysis, biochemical blood analysis, immunological blood analysis, i.e., determination of anti-CarP levels in blood serum using enzyme-linked immunosorbent assay (ELISA). The RA activity index was assessed using DAS-28. The results were processed using Microsoft Office Excel 2019.

Results obtained: out of 50 RA patients, 35 (70%) patients exhibited high and medium disease activity, while 15 (30%) patients exhibited low disease activity. Laboratory blood test results showed that patients with high and moderate activity exhibited high levels of the anti-CarP marker. Additionally, based on DAS results, we identified corresponding results regarding the activity of rheumatoid arthritis. This allows for the

conclusion that patients suffering from rheumatoid arthritis with high and moderate activity exhibit high levels of anti-CarP, indicating a high probability of association with high levels of markers of post-translational protein modifications.

Conclusions. Thus, it was established that the increase in the anti-CarP marker was directly proportional to the increase in joint inflammatory activity. The higher the disease activity, the higher the level of anti-CarP, which does not rule out their relationship with each other.

LITERATURE

1. Abrikosov, A. I., and Strukov, A. I. (1953). Pathological anatomy. Part 1. General pathological processes. Medgiz, 107-133.

Balabanova, R. M. (1997). Rheumatoid arthritis. Rheumatic diseases (pp. 257-295).

3. Wang, Z. et al. Protein carbamylation links inflammation, smoking, uremia, and atherogenesis. Nat Med. 13, 1176–1184 (2007). [DOI] [PubMed] [Google Scholar]

4. Winkel, A. et al. Kinetics of carbamyllized hemoglobin in acute renal failure. Nephrol Dial Transplant. 15, 1183–1188 (2000). [DOI] [PubMed] [Google Scholar]

5. Derksen, V.F.A.M., Huizinga, T.V.J., and van der Voode, D. The Role of Autoantibodies in the Pathophysiology of Rheumatoid Arthritis. SeminImmunopathol. 39 (4), 437-446 (2017). [DOI] [Free PMC Article] [PubMed] [Google Scholar]

6. Dydykina, I. S., Muraviev, Yu. V., Mamistova, A. I., Novoselova, T. M. (2000). Character of registered side effects occurring in patients during treatment at the Clinic of the Rheumatology Institute of the Russian Academy of Medical Sciences. Scientific and Practical Rheumatology, 4, 46.

7. Kopeva, T. N. (1980). Pathology of rheumatoid arthritis. In A. I. Strukova (ed.), Medicine (pp. 196-205).

8. Coniglio, P. et al. Autoantibodies in inflammatory arthritis. Autoimmune Rev. 15 (7), 673-683 (2016). [DOI] [PubMed] [Google Scholar]