INTESTINAL MICROBIOTA AND THE INFLAMMAGING PHENOMENON IN PATIENTS WITH RHEUMATOID ARTHRITIS: THE ROLE OF DYSBIOTIC DISORDERS IN MAINTAINING CHRONIC SYSTEMIC INFLAMMATION

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Abstract. Rheumatoid arthritis (RA) is a chronic autoimmune disease characterized by persistent systemic inflammation, immune dysregulation, and accelerated biological aging. In recent years, the concept of inflammaging—a chronic, low-grade inflammation associated with age-related immunometabolic changes—has received particular attention. Intestinal microbiota, which can support chronic cytokine activation in RA, is considered a potential trigger for this process.

Key word: rheumatoid arthritis, intestinal microbiota, dysbiotic changes, chronic immune-inflammatory

The aim of the study was to investigate the characteristics of the intestinal microbiota in patients with rheumatoid arthritis and evaluate its potential role in triggering and maintaining systemic inflammation within the framework of the inflammaging concept.

Materials and Methods: Forty-five patients with a confirmed diagnosis of rheumatoid arthritis and 15 apparently healthy controls, matched for gender and age, were examined. All subjects underwent disease activity assessment, laboratory markers of inflammation were determined, and intestinal microbiota were analyzed using

MALDI-TOF mass spectrometry of fecal samples to determine the relative abundance of the main bacterial taxa.

Results. Significant changes in the intestinal microbiota composition were found in patients with rheumatoid arthritis compared to controls. The most significant difference was an increase in the representation of the Prevotellaceae family, especially Prevotella spp. ($p<0.05$). In patients with high disease activity, dysbiotic changes were associated with a more pronounced increase in systemic inflammation markers. In patients with high disease activity, dysbiotic changes were associated with a more pronounced increase in systemic inflammation markers: hsCRP levels reached 10–30 mg/L, IL-6 — 8–25 pg/ml, fibrinogen — 4.0–5.5 g/L, reflecting the formation of a chronic proinflammatory background characteristic of inflammaging.

Conclusions. In patients with rheumatoid arthritis, intestinal microbiota disturbances characterized by enrichment of Prevotella spp. may be considered one of the mechanisms triggering and maintaining the chronic immune-inflammatory process associated with inflammaging. The obtained data confirm the involvement of intestinal dysbiosis in accelerated inflammatory aging in RA and substantiate the potential of microbiome-targeted personalized approaches to therapy.

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