The Association between Adipokines and Macrophage Inflammatory Proteins in Patients with Untreated Rheumatoid Arthritis

Liubov Kondratyeva1, Tatyana Popkova2, Elena Alexandrova, Alexander Novikov, Evgeny Nasonov
V.A. Nasonova Research Institute of Rheumatology, Russia
E-mails: ¹kondratyeva.liubov@yandex.ru, ²popkovatv@mail.ru

Abstract: Actuality: The adipose tissue is an active endocrine organ that synthesizes adipokines (adiponectin, leptin, etc.) and also a depot for macrophages. These immune cells produce macrophage inflammatory proteins (MIP), what activated granulocytes, also induce the synthesis and release of other pro-inflammatory cytokines (interleukin-1, interleukin-6, tissue necrosis factor α) which play an important role in the pathogenesis of rheumatoid arthritis (RA).

Aim: To examine the correlation between adipokins synthesis and levels of MIP in patients with early RA.

Material-Methods: The study included 27 early RA patients (20 women, 7 men; 56 [46; 64] years old), never receiving anti-inflammatory therapy (glucocorticoids and disease-modifying antirheumatic drugs). The median disease duration was 8 [6,15] months. The majority of pts were seropositive for IgM RF (89%) and anti-CCP (96%). Medium or high RA activity was documented in all pts (DAS28 5,4 [5,0;6,5]). The control group consisted of 30 healthy subjects without rheumatic diseases, matched by age and sex with RA patients. Serum concentration of adiponectin and leptin was measured with ELISA, MIP-1α and MIP-1β – by multiplex technology X-MAP.

Results: The adiponectin level was higher in untreated RA patients than in the controls (23,0 [15,8; 67,0] vs 9,2 [5,6; 12,2]ng/ml), while leptin concentration were lower than in the control group (25,0 [8,0; 32,0] vs 30,5 [19,0; 46,2]ng/ml, p<0,05 for all). Clear correlation was established between leptin/adiponectin ratio and MIP-1β (r=0,55, p=0,03). High adiponectin concentration was associated with decreased MIP-1β level (r= -0,63, p<0,01). MIP-1α did not show correlation with any of these parameters.

Conclusion: Antiatherogenic adiponectin demonstrated anti-inflammatory properties, its increasing concentration in patients with untreated RA could be compensatory. The indicator of insulin resistance (leptin/adiponectin ratio) was correlated with synthesis of pro-inflammatory MIP-1β.

Key words: rheumatoid arthritis, adiponectin, leptin, Macrophage inflammatory proteins