

Abstract

Background: An imbalance between pro- and anti- inflammatory cytokine activities favors the induction of autoimmunity, chronic inflammation and joint damage in patients with rheumatoid arthritis (RA). Adipokines are bioactive proteins that are important regulators of inflammation. IL-35 is a new cytokine involved in the inflammatory processes in mouse models and is of unknown function in humans. The aim of the work was to study the levels and role of several adipokines and IL-35 in the joint and blood compartment and the association with the disease activity in patients with RA or other rheumatic diseases.

Results: We found increased levels of adiponectin in serum of patients with erosive osteoarthritis (OA) of the hand, differential regulation of new adipokines vaspin and omentin in synovial fluid of patients with RA compared with OA and the effect of therapy using TNF α inhibitor on the expression profile of adipokines in subcutaneous adipose tissue of RA patients. B cell depletion therapy in RA resulted in decrease of serum levels of visfatin that correlated with following change of disease activity. The levels of IL-35 in synovial fluid are significantly higher in RA than in OA and correlate with the disease activity and functional status. IL-35 subunits p35 and EBI3 are overexpressed in RA synovial tissue than that in OA. IL-35 is increased at transcriptional and protein levels after stimulation with proinflammatory cytokine TNF α in RA synovial fibroblasts and peripheral blood mononuclear cells (PBMC). IL-35 induces release of some inflammatory mediators in PBMC.

Conclusion: Our results show the role of adipokines and IL-35 in inflammation in patients with rheumatic diseases and the association with disease activity in RA. Thus, the discovery of new therapeutic targets would be beneficial for patient resistant to current therapy.

Key words: rheumatoid arthritis, adipocytokines, IL-35