

## BONE SCINTIGRAPHY AND INFLAMMATORY RESPONSE IN RHEUMATOID ARTHRITIS

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**BACKGROUND:** Rheumatoid arthritis (RA) is destructive synovitis of autoimmune nature. Cytokines TH1 lymphocytes with products of synoviocyte disrupt natural balance in cytokine network inside synovial tissue, which leads to inflammatory reaction and joint damage. Experimental researches have proved that the tumor necrosis factor-alpha (TNF-alpha) participate in pathogenesis of erosive inflammatory arthritis.

**AIM** of the research is to determine the clinical significance of the TNF-alpha and bone scintigraphy in evaluation of the activity of RA.

**METHODS:** Concentrations of the TNF-alpha in serum samples (S) and synovial fluid (SF) are measured immunoenzymatic method in 64 patients with high (HiA), modest (MoA) and mild active (MiA) disease, according to the Disease Activity Score 28 (DAS 28) and 25 patients with osteoarthritis (OA). Bone scintigraphy is done in 52 patients with RA.

**RESULTS:** Patients with active RA have significantly high ( $p < 0,01$ ) concentrations of TNF-alpha in relation to patients with OA. By comparing the concentrations in 30 patients with HiA, 14 patients with MoA and 20 patients with MiA of RA it is established that the patients with HiA disease have significantly high ( $p < 0,01$ ) concentrations of examined cytokine in S and SF in relation to patients with MoA and MiA disease. The comparison of concentrations between S and SF showed that patients with active RA have considerably increased ( $p < 0,01$ ) concentrations of TNF-alpha in SF accordance with S samples. Bone scintigraphy findings positively correlated with total number of swollen joints and DAS 28 index values in groups HiA and MoA ( $p < 0,01$ ).

**CONCLUSIONS:** We have concluded that the TNF-alpha concentrations can be good indicators of the general activity of RA. Higher concentrations of TNF-alpha in SF than in S, which proves the proposition that TNF-alpha is produced local in joint. The results obtained support the use of bone scintigraphy in clinical practice as reliable method in assessing disease activity in RA patients.