

Analysis of Rheumatoid Arthritis and Atherosclerosis

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Introduction. It is widely accepted that patients with rheumatoid arthritis (RA) have increased mortality and morbidity from premature cardiovascular disease. Up to 50% of this excess mortality is secondary to ischemic heart disease closely followed by cerebrovascular disease.

Aim. The aim of this study is to investigate changes in arterial wall elastic properties, intima-media thickness (IMT) and plaque formation with relation to age, disease duration and inflammation markers in patients with RA in order to detect and estimate cerebrovascular risk factors.

Material and methods. 20 patients with confirmed RA and 27 sex and age matched healthy controls (aged 27–70) were recruited. Carotid arteries hemodynamic parameters, elastic properties, IMT and plaques were measured using high resolution B-mode, M-mode and Doppler-mode ultrasound to calculate arterial wall distensibility and stiffness indices, blood flow velocities and resistance indices, maximal IMT, size of atherosclerotic plaques. Subjects with arterial hypertension and smoking had been excluded from trial.

Results. Statistically significant, patients with RA had mean values of IMT higher than healthy subjects (\pm SD 1.02 ± 0.21 vs. 0.85 ± 0.22 , $t = 2.45$, $p = 0.19$; \sin 1.01 ± 0.28 vs. 0.82 ± 0.19 , $t = 2.47$, $p = 0.18$). Statistically significant, rheumatoid arthritis patient ACC vessel elasticity differs from control group, Mann Whitney test ACCdx ($z = 2.16$, $p = 0.03$), ACC sin ($z = 2.21$, $p = 0.02$). Statistically significantly control and RA group patient's age did not differ, t test $p = 0.20$. No statistically significant ($p < 0.05$) correlations between carotid stiffness parameters, IMT and duration of disease were found. The presence of carotid plaque statistically significantly ($p < 0.05$) correlated with the period of rheumatoid arthritis and markers of inflammation.

Conclusions. The presence of carotid plaque correlated with the period of rheumatoid arthritis and markers of RA seropositivity - RF and anti CCP, although the changes in IMT and carotid elastic indices did not differ significantly according to seropositivity. These preliminary observations can indicate the need of further investigation with the recruitment of larger number of patients with RA to prove the role of systemic inflammation in the atherosclerotic process.