

# Metabolic Syndrome in Rheumatoid Arthritis and Osteoarthritis

Lea Šalamon<sup>1</sup>, Jadranka Morović-Vergles<sup>2</sup>

Clinical Hospital Dubrava, University of Zagreb School of Medicine, Croatia

E-mails: <sup>1</sup>[salamonlea@yahoo.com](mailto:salamonlea@yahoo.com), <sup>2</sup>[jmorovic@kdb.hr](mailto:jmorovic@kdb.hr)

**Abstract:** Background: Excessive cardiovascular morbidity and mortality leading to premature death is common in rheumatoid arthritis (RA) patients. Chronic systemic inflammation is thought to have a pivotal role in increased cardiovascular disease risk in rheumatoid arthritis, contributing to vascular damage (endothelial dysfunction, accelerated atherosclerosis and atherosclerotic plaque instability). Metabolic syndrome is a cluster of major risk factors for cardiovascular disease such as dyslipidemia, hypertension, insulin resistance, impaired glucose tolerance or diabetes, and obesity. In addition to insulin resistance, inflammation is closely associated with the pathogenesis of metabolic syndrome. Reported prevalence of metabolic syndrome in rheumatoid arthritis patients is somewhat conflicting. A 17-45.2% prevalence of metabolic syndrome in rheumatoid arthritis patients was found in the studies with a large number of patients that used the current definitions of metabolic syndrome.

Objectives: The purpose of the study was to examine whether rheumatoid arthritis patients have higher prevalence of metabolic syndrome (MetS) than osteoarthritis (OA) patients in association to a higher level of chronic systemic inflammation in rheumatoid arthritis.

Methods: A total of consecutive 627 rheumatoid arthritis and 352 osteoarthritis patients were enrolled in this multicentric study. Metabolic syndrome was defined using The National Cholesterol Education Program Adult Treatment Panel III criteria.

Results: A 1.6-fold higher prevalence of MetS was found in patients with OA compared to the RA patients. Among the parameters of MetS, patients with OA had significantly higher levels of waist circumference, systolic blood pressure, fasting blood glucose, and triglycerides whereas HDL-cholesterol and diastolic blood pressure values were similar in both groups of patients. Higher values of inflammatory markers (C-reactive protein [CRP], Erythrocyte Sedimentation Rate [ESR]) in MetS than in non-MetS patients and higher prevalence of MetS in patients with CRP level  $\geq 5$  mg/L in both RA and OA patients were found. In multivariate logistic regression analysis significant predictors of MetS were type of arthritis (OA vs. RA; OR 2.5 [95% CI 1.82-3.43]), age (OR 1.04 [95% CI 1.03-1.06]), and ESR (OR 1.01; [95% CI 1.00-1.01]). The significant association between OA and MetS was maintained in the regression model that controlled for body mass index (OR 1.87 [95% CI 1.34-2.61]).

Conclusion: The present analysis suggests that OA is associated with an increased risk of metabolic syndrome, which may be due to a common underlying pathogenic mechanism.

**Key words:** Rheumatoid arthritis, Osteoarthritis, Metabolic syndrome, Inflammation