Cardiovascular diseases are the leading cause of death in the developed countries. Due to chronic inflammatory state that accelerates the progression of atherosclerosis, patients with chronic inflammatory rheumatic diseases, rheumatoid arthritis and axial spondyloarthritis, are especially susceptible to cardiovascular complications.

Dysfunction of endothelium, inner layer of cells lining the lumen of the vessels, precedes atherosclerosis and is present in every stage of that disease. Disturbances in microcirculation might occur before endothelial dysfunction affects larger vessels. It is suggested that the processes occurring in the skin microcirculation may reflect the conditions in systemic microvasculature As microvascular endothelial dysfunction can serve as a predictor of cardiovascular incidents in patients without apparent cardiovascular disease, identifying patients with that abnormality in microcirculation can be an important way of prevention.

However, it is still unknown, why are there patients with rheumatoid arthritis and axial spondyloarthritis with high disease activity who do not have microvascular endothelial dysfunction. And why are there young patients with rheumatic disease of short duration who have endothelial dysfunction and older patients with long-term disease who do not? What is more, typically used biomarkers of inflammation do not correlate with microvascular endothelial dysfunction.

To answer these questions we intend to evaluate microvascular endothelial function with three noninvasive methods in the group of patients with rheumatoid arthritis, axial spondyloarthritis, and in healthy controls, all without classical cardiovascular risk factors. We also plan to assess concentrations of certain mediators of inflammation and immune responses, i.e. cytokines (TNF-α, interleukin 1β, interleukin 6, interleukin 17 and interleukin 23) and antibodies (IgG antibodies against carbamylated proteins, IgG antibodies against oxidized LDL, and IgG antibodies against apolipoprotein A-1) to determine, whether are they better indicators of the microvascular endothelial function than conventionally utilized inflammatory biomarkers.

Obtaining this data can result in finding better predictors of cardiovascular risk in rheumatic diseases and may have impact on the mode of therapy. Those perspectives meet the research agenda of European League Against Rheumatism (EULAR) recommendations.