Background: Cardiovascular (CV) disease is the leading cause of death in Ankylosing Spondylitis (AS). Chronic systemic inflammation driven endothelial dysfunction leading to accelerated atherosclerosis results in premature mortality. Endothelial dysfunction is potentially treatable hence a therapeutic target. Predictive biomarkers for endothelial dysfunction would allow tailoring therapy to the individual.

Objectives: To assess the endothelial dysfunction in AS in context of markers of inflammation and oxidative stress in AS patients.

Methods: Sub group–analysis of our previous studies of AS was carried out and 80 AS patients were compared with 40 healthy controls matched for age and sex that were also part of these studies. Such analysis had so far not been performed in this cohort. Patients with traditional CV risk factors had been excluded in these studies. Flow-mediated dilatation (FMD), as a measure of endothelial function, was assessed by AngioDefender (Everest Health, Ann Arbor, MI). Inflammatory measures included: Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) and Ankylosing Spondylitis Disease Activity Score (ASDAS) in AS. We also assessed markers of inflammation, including C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), proinflammatory cytokines (interleukin [IL]-1, IL-6, and a tumor necrosis factor [TNF-α]), and endothelial dysfunction, including lipids and nitrite and marker of oxidative stress, TBARS.

Results: FMD was significantly lower in AS patients compared with controls ([5.80±0.35% vs. 9.09±0.35%, p≤0.05]) reduced by approximately 36%) whereas serum nitrite, TBARS, total cholesterol and LDL levels were significantly higher in AS compared with controls (p≤0.05). Compared with controls, AS patients had significantly high BASDAI, ASDAS and increased concentrations of ESR, CRP, TNF-α, and IL-6. In AS, FMD inversely correlated with ASDAS, CRP (Figure 1A), TNF-α (Figure 1B), nitrite (Figure 1C) and TBARS (Figure 1) and positively correlated with HDL (p≤0.05).

Conclusion: In AS, FMD was impaired, indicating endothelial dysfunction. ASDAS, CRP, TNF-α, nitrite, and TBARS were independent predictors of FMD in AS-related inflammatory mechanisms (TNF-α, IL-6) and markers of vascular function and oxidative stress (CRP, nitrite and TBARS) may all be involved in the development of cardiovascular disease in AS and these predictors could serve as a novel therapeutic targets for preventing CV risk in AS.

Disclosure of Interests: None declared.

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