A COMPARISON OF VASCULAR INFLAMMATION IN RHEUMATOID ARTHRITIS, PSORIASIS AND HEALTHY CONTROLS BY FDG-PET/CT: A PILOT STUDY

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Background: Inflammatory diseases such as rheumatoid arthritis (RA) and psoriasis may increase cardiovascular diseases (CVD) beyond traditional risk factors. We have previously shown that vascular inflammation by FDG PET/CT is increased in patients with psoriasis; however, whether similar patterns exist in RA is unknown.

Methods: We enrolled 20 subjects in this pilot study: 5 subjects with moderate to severe RA, 5 patients with moderate to severe psoriasis and 10 healthy controls; patients with diabetes, CVD or tobacco use were excluded. Medications and CVD risk factors were recorded and we measured plasma lipids, metabolic and inflammatory markers. All subjects underwent a whole-body FDG-PET/CT (Gemini TF, Phillips) to measure mean standard uptake value (SUV) within the ascending, thoracic and abdominal aorta. Volume-based measures were calculated based on slice thickness and area. We used t-tests for unadjusted analysis and multivariable linear regression (STATA 12).

Results: This was a relatively young sample to assess for CVD (RA mean age 36, psoriasis age 40, controls age 40). However, as previously shown, psoriasis increased vascular inflammation compared to controls in the ascending aorta (SUV mean 1.49 vs. 1.39, p<0.001), aortic arch (1.42 vs. 1.29, p<0.001), and abdominal aorta (1.38 vs. 1.29, p<0.001), and this was similar in RA subjects compared to controls (ascending aorta 1.47 vs. 1.39, p= 0.01; aortic arch 1.38 vs. 1.29, p<0.001; abdominal aorta 1.32 vs. 1.29, p<0.001). When volume-based measures of vascular inflammation were used, psoriasis increased vascular inflammation compared to RA after adjustment for CVD risk factors and systemic medications (beta coefficient ascending aorta 15.2, p< 0.001; aortic arch 44.8, p<0.001; abdominal aorta 18.5, p<0.001).

Conclusions: These preliminary observations using FDG PET/CT to estimate vascular inflammation support epidemiological findings of premature atherosclerosis in RA and psoriasis. The higher degree of vascular inflammation in patients with psoriasis compared to RA is an interesting finding necessitating further study.