Biologics improve endothelial, vascular and left ventricular myocardial function in patients with psoriatic arthritis


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Background/Introduction: Psoriatic arthritis is characterized by systemic inflammation leading to an increased risk of cardiovascular diseases.

Purpose: We aimed to investigate the effects of biologics on endothelial glycocalyx, vascular and left ventricular (LV) myocardial function in patients with psoriatic arthritis.

Methods: One hundred twenty patients (mean age: 51±11 years) with psoriatic arthritis were randomized to receive biologics [n=60; anti-tumor necrosis factor-α (etanercept, adalimumab, infliximab), anti-interleukin (IL)-12/23 (ustekinumab) or anti-IL-17 (secukinumab)] or nonbiologics (n=60; methotrexate or cyclosporine). At baseline and 4 months post-treatment, we measured: (1) Perfused boundary region (PBR) of the sublingual microvessels with a diameter 5–25μm using Sidestream Dark Field camera (Microscan, Glycocheck). Increased PBR indicates impaired glycocalyx integrity. (2) Pulse wave velocity (PWV - Complior; ALAM Medical), (3) Coronary flow reserve (CFR) in the distal left anterior descending coronary artery. (4) Flow-mediated dilation (FMD) of the brachial artery and (5) LV global longitudinal strain (GLS) using speckle-tracking echocardiography.

Results: Compared with baseline, all patients had reduced PWV (11±2.1 versus 10.3±1.5m/s, p=0.001) and increased FMD (5.45±3.2 versus 9.77±4.7, p=0.004) at 4 months. PBR remained unchanged in both study groups (p>0.05). Compared with nonbiologics, biologics resulted in a greater reduction of PWV (−10% versus −4%) and in a greater increase of CFR (+11% versus −1%), FMD (+102% versus +56%) and GLS (+10% versus −2%) (p<0.05 for all comparisons) 4 months post-treatment. In patients treated with biologics, the percent increase of GLS post-treatment was related with the percent reduction of PWV (r=-0.28, p=0.034) and with the percent increase of FMD (r=0.42, p=0.006).

Conclusion: In psoriasis arthritis, biologics confers a greater improvement of endothelial, vascular and LV myocardial function compared with nonbiologics after 4-month treatment.