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RHEUMATOID ARTHRITIS

Features of synovium in RA remission revealed

> the researchers characterized the cellular components of synovial tissue

In patients with rheumatoid arthritis (RA) in clinical remission but with synovitis detectable by power-Doppler ultrasonography (PD), the synovium is characterized by persistently high levels of macrophage infiltrates and vascularity, according to new research led by Juan D. Cañete.

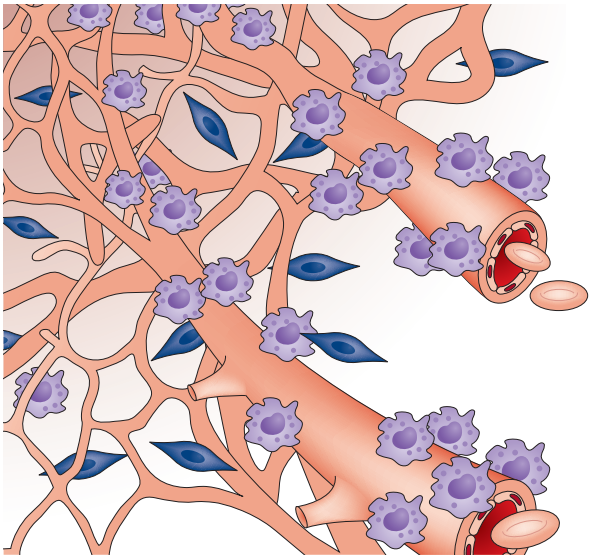
Previous work had shown that such patients have a higher DAS28 score and may be more prone to flares than those without PD-defined synovitis, but exactly how the joint microenvironment differs between these patients was unknown. "A better definition and characterization of RA in clinical remission is needed to be sure that patients have no subclinical activity that can lead to progressive joint damage," says Cañete.

Using immunopathological methods, the researchers characterized the cellular components of synovial tissue from patients in clinical remission for >6 months (DAS28 <2.6 and no swollen or tender joints) who had PD-defined synovitis ($n = 20$), synovial tissue from patients with active RA ($n = 22$), and non-inflammatory synovium from patients undergoing surgery for meniscal lesions ($n = 10$). They found reduced levels of T cells, B cells and mast cells, and a lower density of synovial fibroblasts, in the patients in remission as compared with active disease, but similar levels of macrophage infiltrates.

Synovial vascularity and expression of the angiogenic factors basic fibroblast growth factor (bFGF) and CXCL12 were higher in synovial tissue from patients in clinical remission than in non-inflammatory synovium, although vascularity and levels of CXCL12 were reduced in comparison with active disease.

Interestingly, levels of B cells and mast cells were higher in patients in remission who went on to have RA flares within 12 months (40%) than in those who did not. The exact role played by B cells and mast cells in the transition from subclinical to active synovitis is unclear, but Cañete says it is firmly on his research agenda, as "understanding the immunopathology may increase knowledge of the physiopathology of RA and identify potential biological biomarkers of further reactivation and progression of structural damage."

Joanna Collison



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ORIGINAL ARTICLE Ramírez, J. *et al.* Immunopathologic characterization of ultrasound-defined synovitis in rheumatoid arthritis patients in clinical remission. *Arthritis Res. Ther.* **18,** 74 (2016)