32 EXPRESSION OF IL-20 IN LESIONAL SKIN AND SYNOVIUM OF PATIENTS WITH PSORIATIC ARTHRITIS COMPARED TO RHEUMATOID ARTHRITIS AND ITS RESPONSE TO ALEFACEPT TREATMENT

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Background and objectives Psoriatic arthritis (PsA) is an inflammatory joint disease associated with psoriasis. Alefacept, a lymphocyte function-associated antigen (LFA)-3 Ig fusion protein that binds to CD2 and functions as an antagonist to T cell activation, has been shown to result in improvement in psoriasis and has limited effectiveness in PsA. Interleukin-20 (IL-20) is a key pro-inflammatory cytokine involved in the pathogenesis of psoriasis. The effects of alefacept treatment on IL-20 expression in the synovium of patients with psoriasis and PsA are currently unknown.

Material and methods Eleven patients with active PsA and chronic plaque psoriasis were treated with alefacept (7.5 mg per week for 12 weeks) in an open study. Skin biopsies were taken before and after 1 and 6 weeks while synovial biopsies were obtained before and after 4 and 12 weeks of treatment. Synovial biopsies from patients with rheumatoid arthritis (RA) (n=10) were used as disease controls. Immunohistochemical analysis was performed to detect IL-20 expression, and stained synovial tissue sections were evaluated by digital image analysis. Double staining with IL-20 and CD68 (macrophages) and CD55 (fibroblast-like synoviocytes, FLS) was performed to determine the phenotype of IL-20 positive cells in PsA synovium. IL-20 expression in skin sections (n=6) was analysed semi-quantitatively.

Results IL-20 was abundantly expressed in both RA and PsA synovial tissues. In inflamed PsA synovium $CD68^+$ macrophages and $CD55^+$ FLS co-expressed IL-20 and its expression correlated with the numbers of FLS. IL-20 expression in lesional skin of PsA patients correlated positively with the Psoriasis Area and Severity Index (PASI). While IL-20 expression in PsA synovium was not affected by alefacept treatment, IL-20 expression in lesional skin decreased significantly (p=0.04) after 6 weeks of treatment.

Conclusions Conceivably, the relatively limited effectiveness of alefacept in PsA patients might be explained in part by persistent FLS-derived IL-20 expression.