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Macrophage derived cytokine and nuclear factor ?B in patients with psoriatic arthritis

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Keywords

Monocyte derived cytokines, psoriatic arthritis, synovial memebrane

Context

The expression of monocyte-derived cytokines and the transcription factor nuclear factor-?B (NF-?B) has not previously been analysed in SM or skin samples derived from patients with PsA. The elucidation of the cytokine pathways involved in PsA may have therapeutic implications. To analyse the expression of monocyte-derived cytokines in SM and skin of patients with PsA compared to SM from patients with rheumatoid arthritis (RA).

Significant findings

While there was no difference in sublining cellular infiltration, lining layer thickness and $CD68^{+}$ macrophage infiltration were reduced in PsA patients. SM staining for tumour necrosis factor-a, interleukin (IL)-1a, IL-1?, IL-15 and IL-10 was predominately localised to the lining layer and perivascular macrophages. In general, expression of these cytokines was reduced in PsA patients as compared to RA patients and this was thought likely to relate to the lower macrophage numbers. No data on serial sections or from double staining, however, were presented. In keeping with reduced cytokine expression, the expression of NF-?B was lower in PsA than in RA sublining. Finally, while a similar pattern of cytokine staining was noted in the skin, perilesional dermis was noted to have higher levels of IL-15 and increased marked basal keratinocyte staining of IL-10 was observed in perilesional as compared to lesional skin.

Comments

There are several limitations of this study. First is the long duration of disease and the selection for very severe cases of psoriatic arthritis (PsA) based on the 80% of patients with erosive change. This may

explain some of the differences observed between results in this study and previous work. Second, the authors comment that it proved impossible to reliably quantify cytokine expression in areas of high cellular density. Conversion to an image analysis system might have been appropriate. Third, the high number of non-evaluable PsA synovial membrane (SM) specimens also deserves further comment. Despite these limitations, the study is a useful description of the cytokine patterns in PsA and the results suggest that the use of currently available anticytokine strategies may be effective in this potentially disabling condition.

Methods

Blind-needle biopsy samples were obtained from 34 patients with PsA and from 7 patients with RA. An additional 13 synovial tissue samples were obtained at the time of surgical synovectomy from patients with RA and 5 SM samples were obtained from osteoarthritis patients at arthroplasty. In 25 PsA patients, skin biopsies were also obtained. More than one third of the SM samples obtained from PsA patients were considered non-evaluable. Standard immunohistochemical techniques were used to quantify the cellular infiltrate and the cytokine and NF-?B localisation.

References

1. Danning CL, Illei GG, Hitchon C, Greer MR, Boumpas DT, McInnes IB: Macrophage-derived cytokine and nuclear factor ?B p65 expression in synovial membrane and skin of patients with psoriatic arthritis. Arthritis Rheum. 2000, 43: 1244-1256.