A34 INTERLEUKIN 33 EXPRESSION IN HUMAN ARTHRITIS

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Background and objectives Interleukin 33 (IL-33) is the most recently discovered member of the IL-1 family of cytokines. Recent evidence in human and mouse suggests a role for IL-33 and its receptor T1/ST2 in arthritis. In this study, the authors quantified IL-33 levels in serum and synovial fluid (SF), and assessed synovial IL-33 expression levels and pattern in patients with rheumatoid arthritis (RA), psoriatic arthritis (PsA) or osteoarthritis (OA).

Materials and methods IL-33 and sST2 levels were assessed by ELISA in serum and SF samples of patients with RA (serum,

n=11; SF, n=10), PsA (serum, n=9; SF, n=9) and OA (serum, n=9; SF, n=7). IL-33 mRNA expression levels were quantified by RT-qPCR in synovial biopsies obtained from patients with RA (n=10), PsA (n=10), and OA (n=8). IL-33 protein expression pattern was examined by immunohistochemistry (IHC) in synovial tissue from patients with RA (n=8), PsA (n=7) and OA (n=4).

Results Serum and SF IL-33 levels tended to be higher in RA than in OA patients, and serum IL-33 concentrations were significantly higher in RA than in PsA. Interestingly, IL-33 was not detectable in any of the PsA samples tested. In matched serum-SF samples of RA patients (n=10), the authors observed comparable concentrations of IL-33 in SF and in serum. There was a wide variation of synovial tissue IL-33 mRNA levels within each disease group. IL-33 mRNA levels were not significantly different between the groups and a similar IL-33 protein expression pattern was observed by IHC in RA, PsA and OA synovium. In all pathologies, strong nuclear expression of IL-33 was observed in endothelial cells. In addition, IL-33 expression was observed in a subset of RA, PsA and OA patients in the nucleus of cells morphologically consistent with synovial fibroblasts.

Conclusions This study confirms increased circulating IL-33 levels in RA. In addition, the authors report that IL-33 is undetectable in the serum or SF of PsA patients. Local expression of IL-33 in the synovium was observed at similar variable levels in RA, PsA and OA, suggesting that inflamed joints do not represent the primary source of elevated serum and SF levels of IL-33 in RA.