

## C845406 : MAJOR Medicine (Rheumatology)

KEY WORD: Cytokines / Synovial fluid / Septic arthritis / Non gonococcal

Manathip Osiri : Study of Proinflammatory Cytokines in Synovial Fluid of Patients with Non-Gonococcal Septic Arthritis in Chulalongkorn Hospital. thesis advisors: Prof. Utis Deesomchok, MD, Kiat Ruxrungham, MD. 63 pp. ISBN 974-635-673-9

Objective. To determine the levels and the proportions of detectable IL-1 $\beta$  , IL-6 and TNF- $\alpha$  in synovial fluid of patients with non GC septic arthritis and their clinical correlations.

Methods. The supernatants of centrifuged synovial fluid of 23 patients with non GC septic arthritis before and on day 1, 3 and 7 of antibiotic treatment were measured for IL-1 $\beta$  , IL-6 and TNF- $\alpha$  by enzyme-linked immunosorbent assay (ELISA). The clinical manifestations and the results of synovial fluid analysis which include synovial WBC count, synovial fluid gram stain and culture were also recorded and utilized for comparison analyses.

Results. From the evaluable subjects (n = 20) at baseline, prior to the initiation of treatment, high levels of all 3 proinflammatory cytokines were detected in most of the synovial fluid samples i.e., the median IL-1 $\beta$  was 49.8 pg/ml (0-6384), IL-6 2185 pg/ml (165-3422), TNF- $\alpha$  334 pg/ml (0-6734). After day 7 of treatment, the level of IL-1 $\beta$  was declined significantly (p=0.036) while the levels of IL-6 and TNF- $\alpha$  were persistently high up to day 7. The proportions of detectable IL-1 $\beta$ , IL-6 and TNF- $\alpha$  were 68.4%, 100% and 95%, respectively. There was a significant correlation among TNF- $\alpha$ , IL-1 $\beta$  concentrations and the WBC counts in the synovial fluid. Positive correlations of IL-1 $\beta$  level with the existence of joint effusion (p<0.001) and also TNF- $\alpha$  level with tenderness of the affected joint (p<0.001) were observed.

Conclusion. The present study shows that high levels of proinflammatory cytokines are produced locally in patients with non GC septic arthritis. Synovial fluid IL-1 $\beta$  concentration, not TNF- $\alpha$  or IL-6, was decreased significantly after day 7 of treatment. These findings suggest that proinflammatory cytokines, particularly IL-1 $\beta$ , play a major role in the process of inflammation in septic joints and may be potentially useful in predicting the outcome and complication of patients with non GC septic arthritis.

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