Cytokine status in patients with systemic lupus erythematosus

Andrei Y. Hancharou[1], Konstantin A. Chyzh[2], Tatiana V. Ryabzeva[2], Leonid P. Titov[1], Nikolay F. Soroka[2]

[1] Research Institute for Epidemiology and Microbiology, Minsk, Belarus
[2] Belarusian State Medical University, Minsk, Belarus

Rationale The production of cytokines involved in the inflammation is crucial for the development of system lupus erythematosus (SLE) as well as SLE complications, such as lupus nephritis (LN). Establishment of predictive tests for SLE complications is important. The aim of the current investigation was to investigate serum, urine and intracellular proinflammatory cytokines in SLE and SLE+LN to determine additional predictive criteria for LN.

Methods Blood samples from patients with SLE (n=14), SLE+LN (n=15) and healthy controls (C) (n=16) were assayed for intracellular IL4, IL17, IFN-γ, TNF-α using "FACSCalibur" cytometer. Serum and urine samples assayed for IL17, IL6, IL1β and IL8 by ELIZA.

Results The number of $IL17^{+}$Th17-cells and IFN-γ^{+} Th1-cells was significantly increased in both SLE and SLE+LN patients in comparison with the C. However no differences between SLE and SLE+LN patients were observed. No correlation between intracellular cytokine levels was found supposing highly variable individual cytokine spectra. Correlation between intracellular 1L17 and serum IL1β, IL8 was shown consistent with their proinflammatory activity and chemotactic role for neutrophils. Serum IL6 levels were correlated with urine IL17, and levels of urine IL8 excretion with IL1β in urine.

Conclusions Increase of Th1 and Th17 cells was established in SLE and SLE+LN patients while no differences between groups was found. Correlations between intracellular, serum and urine cytokines support the role of these cytokines in the inflammation, but don't help to predict LN. The future prospect is to study mRNA expression of genes involved in the immune system functioning using DNA-microarray.