CLINICAL USEFULNESS OF MEASURING PERIPHERAL BLOOD NAIV AND MEMORY B CELL SUBSETS IN PATIENTS WITH SYSTEMIC SCLEROSIS

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Introduction: Systemic sclerosis (SSc) is an autoimmune disease characterized by vascular injury, autoimmune phenomena, inflammation, and fibrosis of the skin and various internal organs. Several lines of evidence indicate that abnormal B-cell function plays a key role in the development of SSc. The anti-CD20 monoclonal antibody therapy seems to show some clinical efficacy in SSc further emphasizing the importance of B cells in the pathomechanism of the disease. The B-cell compartment in peripheral blood of SSc patients contains an elevated number of naive and a decreased number of memory B cells. The aim of the present research was to set up an algorithm for the extended analysis of these B-cell subsets and to evaluate the clinical significance of the defined subpopulations.

Methods: Peripheral blood samples were obtained from SSc patients and healthy controls, PBMCs were isolated using ficoll gradient centrifugation, followed by magnetic bead separation of CD19+ B cells. Multiparametric flow cytometry was performed with antibodies specific for CD27, IgD, CD80, CD95 molecules. CD27 positivity was used to distinguish between naive (CD27-) and memory (CD27+) B cells. Detection of IgD was applied to separate non-switched (CD27+IgD+) and switched (CD27+IgD-) memory subsets. In addition to expression of CD80, which provides a co-stimulatory signal necessary for T cell activation and survival, expression of CD95, the FAS receptor was also examined to investigate the activation state of the previously identified B cell subpopulations.

Results: The ratio of naive B cells was higher, the proportion of memory B cells, more markedly the non-switched memory B cells, was decreased in SSc patients compared to healthy controls. Among SSc patients the ratio of switched memory and CD95+ memory B cells was higher in dcSSc and in patients with pulmonary fibrosis. The proportion of switched memory B cells was also elevated in the anti-Scl-70 antibody positive group compared to ACA negative patients. In dcSSc patients the ratio of CD95+ B cells was also higher.

Conclusions: According to our results detailed flow cytometric analysis of naive and memory B-cell subsets could contribute to better distinction between the two SSc subtypes and to evaluation of disease severity, consequently may be a useful new tool in routine immunological diagnostics.

poszter klinikai témában