GLYCOSYLATION OF BLOOD LYMPHOCYTES IN INFLAMMATORY PROCESSES

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Background and aim. Inflammatory processes are one of the most difficult problems of clinical medicine both in Ukraine and around the world due to their high prevalence, staged course and the development of severe complications. The pathogenesis of many diseases includes abnormal glycosylation of glycoproteins. Most glycans are located on the outermost surfaces of cells and are extremely diverse. In addition to the formation of important structural features, carbohydrate components of glycoconjugates modulate or mediate a wide range of functions in physiological and pathophysiological conditions. The aim of the study was to establish changes in the glycosylation of cellular glycoproteins in inflammatory processes.

Methods. The object of the study were blood lymphocytes of patients with inflammatory diseases - (n = 8) aged 58-66 years. The control group consisted of healthy volunteers (n = 10) aged 55 to 65 years. Isolation of lymphocytes from heparinized blood (20-25 units of heparin per 1 ml of blood) was done by a modified method of A. Boyum (1976), which is based on the sedimentation of cells in a density gradient of Ficoll-Urografin (ρ=1,077g/ml). Glycotope exposure was determined by flow cytofluorimetry using SNA lectin (Lectinotest, Ukraine) conjugated with fluorescein isothiocyanate - FITC.

Results. Lectin SNA (Sambucus nigra) was used to study the terminal residues of N-acetylneuraminic acid, which is affine to α(2→6)-bonds of N-glycans. The study found that the number of lymphocytes with a positive reaction to SNA lectin decreased by 5 times compared to normal.

Conclusions. Our results and literature data suggest that the development of the inflammatory process causes a change in the degree of glycosylation of lymphocyte membranes and requires further study using a different spectrum of lectins.