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FUNCTIONAL PROPERTIES OF CELL SURFACE OF GRANULOCYTES AT MODELING OF ACTIVATION ELEMENTS OF PURINERGIC SIGNALING SYSTEM

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In the regulation of the functional activity of immune cells, a purinergic signaling system is directly involved. In the performed study the micromechanical and functional properties of granulocytes surface at the modeling of mechanical stress *in vitro* were investigated in the blood of patients with ALL. In the condition of the activation of elements of purinergic signaling system the increase of ATP concentration by 26.7% ($P < 0.05$) and charge of surface by 24% ($P < 0.05$), the decrease of Young's module by 6.3% ($P < 0.05$) and the adhesion force in the system "erythrocyte – granulocyte" by 17.8% ($P < 0.05$) as compared with control was established. Under the influence of mechanical stress, the migration activity of granulocytes increase by 24.5% ($P < 0.05$) herewith the cell more actively used the membrane reserve in the volume regulation as compared with intact. The obtained data points out to the leading role of the purinergic signaling system which modeling the micromechanical and functional properties of the cells surface of granulocytes at mechanical deformation cells in the conditions of the tumor process. Obtained data can be taken into account when shearing and developing of pharmacological regulatory targets aimed at the improved of the transcapillary metabolism at the development of the pathophysiological process in the patients with leukemia.

Keywords: granulocytes, Young's module, adhesion force, surface potential, osmoregulation reactions, migration activity