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Key words: neutrophils, phagocytosis, leukocytosis, neutrophilia.

Received: 24.05.2014
Accepted: 22.06.2014

UDC 616.155.394.5

NEUTROPHILIA: WHAT IS HIDDEN UNDER THE MASK

ABSTRACT. The data regarding mechanism of the production, structure and functions of neutrophils are presented. Various options of their interaction with pathogens are described in details. The difference between chemotaxis and chemokinesis is highlighted. It is also mentioned that the number of neutrophils in the blood alters with the age. The maximum (47-77 %) is reached at 16 years and is stayed constant from that age. Changes in the number of neutrophils are called neutropenia or neutrophilia. Neutrophilia (or neutrophil leukocytosis) describes a high number of neutrophil granulocytes in the blood. Several mechanisms of neutrophilia are identified. They include excessive production of neutrophils by bone marrow, accelerated release of neutrophils from the bone marrow into the peripheral blood, slow migration of cells from bloodstream to peripheral tissue, redistribution of neutrophils in the bloodstream due to the decrease of the wall and increase in the circulating pool. Very often neutrophil leukocytosis is caused by the acting of several mentioned factors simultaneously. Moreover, the difference between absolute and relative neutrophilia is provided. A special emphasis is laid on the main causes of physiological and pathological increase in the number of polymorphonuclear leukocytes in the blood. The physiological reasons include postprandial neutrophilia, especially after consumption of a great amount of proteins, neutrophilia of newborns, after the increase of the body temperature, after physical exercises, during ovulation. The pathological neutrophilia can develop during infections, toxic conditions, acute purulent-septic processes, diseases accompanied by necrosis, decay, and tissue damage, blood diseases, after drug consumption. A lot of attention is paid to the "left shift" - the presence of increased proportions of younger, less well differentiated neutrophils and neutrophil-precursor cells in the blood. A severe neutrophilia with left shift is called a leukemoid reaction. Bone marrow biopsy and the concentration of leukocyte alkaline phosphatase help to differentiate between leukemoid reaction and blood diseases.

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Citation:

Vatutin NT, Shevelyok AN, Degtiarova GE, Peruieva IA. [Neutrophilia: what is hidden under the mask]. *Morphologia*. 2014;8(2):7-13. Russian.

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