CHEMILUMINESCENCE ACTIVITY OF NEUTROPHIL GRANULOCYTES UNDER THE INFLUENCE OF MAGNETIC NANOPARTICLES OF FERRIHYDRITE (*INVITRO*)

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The article presents the results of studying and evaluating the impact of magnetic nanoparticles of ferrihydrite on neutrophil granulocytes in human blood (*in vitro*) in order to determine their bio compatibility and eco toxicity. The subject soft here search were blood neutrophil granulocytes of 29 conditionally-healthy donors of blood, as well as magnetic nanoparticles of ferrihydrite (NP), the preparation dose in minimum concentration reached 25 mg, in maximum concentration it reached 50 mg per 106cells/ml. We implemented the sol of magnetic NP, obtained by biogenic synthesis in International Scientific Centre for Studying Extreme States of an Organism. Functional activity of blood neutrophil granulocytes has been determined by luminol-dependent chemiluminescence. Magnetic NP were introduced into pilot samples straight before chemiluminescent analysis, and also after the incubation with in 30 minutes under 37оCentigrade. As a result of thee stimation of the early response of neutrophil granulocytes to the influence of minimum concentration of magnetic NP *in vitro* we found statistically true decrease of the intensity (1.6 times), the area under the curve (2.1 times) in zymosan-induced chemiluminescent response, the activation index (2.3 times). When evaluating the late response of neutrophil granulocytes to the influence of maximum concentration of magnetic NP *in vitro* we have found statistically true lowering of the time of reaching the peak (10 times) of spontaneous chemiluminescence. More over we marked consider able lowering of maximum intensity 6 times and the reduction of the area under the curve of zymosan-induced chemiluminescence 5.6 times under the influence of magnetic NP under the lowering of activation index 3.7 times. The authors determined that magnetic NP were intensively decreasing the functional activity of neutrophil granulocytes. The intensity of the impact is higher under the preliminary incubation of the cells with magnetic NP. At the same time, short effect of magnetic NP to neutrophil granulocytes can be a modulating one and depends on the initial level of cell reactivity. We revealed that magnetic NP influence concerns only activated cells.