

Dynamics of hemorheological parameters and their dependence on the helio geophysical environment in the modeled hypo-geomagnetic space as a prognostic model of bio-tropic consequences of global geomagnetic deprivation

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Abstract

According to geophysicists, the induction of the Geomagnetic Field (GMF) annually weakens, on average, by 40-70 nTl, which determines new risks in interactions of a man with the helio geophysical environment. Predictive studies in the simulated conditions of GMF weakening are of priority importance for the development of geo-ecological safety systems. In a changing cosmo-ecological environment, a dynamic prognostic assessment of the homeostatic systems of an organism and above all, the circulatory system, whose functioning is largely provided by the optimal state of its hemorheological components, becomes especially important. The aim of the study was to investigate the dependence of the rheological and hemostatic parameters of human blood on helio geophysical factors (0, 24, 48 hours before their satellite registration) under conditions of a simulated weakening of the geomagnetic field. To weaken the GMF (more than 500 times), a hypo-geomagnetic installation (GGMU) was used. Hemorheological parameters (blood viscosity, platelet aggregation, clotting time, bleeding time, prothrombin index) were determined in 180 patients with arterial hypertension (AH) and 60 healthy persons after 30 minutes incubation of blood samples under background conditions and in GGMU. Direct correlation dependences of hemorheological parameters from the indices of solar activity, indicating a decrease in fluidity and an increase in blood coagulation with an increase in solar activity, predominantly expressed in patients with AH were found. Short-term geomagnetic screening of blood samples led to a weakening of the correlation dependencies of these parameters on the indices of solar activity in patients with AH, while in healthy people an outstripping direct significant dependence of blood viscosity on the proton component of cosmic rays, yet before their streams have reach the satellite registration zone near the Earth, was revealed. The study confirms the important role of GMF in maintaining human electromagnetic homeostasis and indicates the possibility of predicting some evolutionary consequences of the continuing geomagnetic deprivation of the biosphere and humanity as a global natural event for living matter on Earth.

Biography

Evgeniya Sevostyanova has completed her graduation from State Medical Institute. She is a Senior Scientist of International SRI of Cosmo-planetary Anthropoecology and SRI of Experimental and Clinical Medicine. She is a co-author of 5 monographs and more than 98 publications in reputed journals. She also serves as a Scientific Editor and Reviewer. Her scientific interests are human ecology, climatic pathology and internal medicine.

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