



ABSTRACT BOOK



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EMOTIONAL STRESS ADAPTATION ASPECTS ON THE BACKGROUND OF ORGANISM GENERAL ELECTROMAGNETIC IRRADIATION (EMI)

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Introduction. The distinguishing feature of the modern human vital activity conditions is the environment saturation with various factors that affect physical and psychophysiological state, working capacity and resistance to diseases. These include electromagnetic waves, generated by the variety of industrial sources, communications means, scientific research, medicine and in everyday life. Therefore, one of the most promising ways of maintaining vital activity at the desirable health level is the actualization of the reserves of psychophysiological adaptation to various influences. The present work purpose is the study of emotional stress adaptation vegetative components under conditions of organism low intensity general electromagnetic irradiation.

Materials and methods. Experimental studies were conducted on 83 male rats of the Wistar population, which were exposed to 72 hours long continuous general irradiation by nonthermal intensity electromagnetic waves. Emotional stress loads were reproduced in conditions of a realistic model of experimental emotional stress – «stress of expectation». Adaptation process vegetative supplying was studied by consistency of cardio-respiratory frequency indices according to the index of conjugation ($IC = \text{heart rate} / \text{respiratory rate}$). For a more adequate interpretation of the data obtained, the animals were preliminary grouped according to the nature of locomotors reactions to sound into three types: «inhibitory», «balanced» and «excitable».

Results of research. The long exposure to electromagnetic radiation (EMR) induced multidirectional changes in heart rate and respiration frequencies, mismatch of conjugation of the studied indices during emotional stress adaptation, as well as the information indicators infrastructure decay. This resulted in the proper and actual IC values difference decrease from $11,3 \pm 0,42$ in the initial state to $21,4 \pm 1,35$ on the EMR background. It was observed that the genetically determined predominance of the processes of excitation or inhibition is a factor that reduces the resistance towards EMR. When analyzing the infrastructure of correlation relationships, there was a displacement shift, the most pronounced connections of the group of functional cardio-respiratory indices from the heart rate to the frequency of respiration.

Conclusions. The long-term organism general irradiation with low intensity electromagnetic waves causes disorder of the intersystem integration and the regulation vegetative mechanisms concurrency during emotional stress adaptation process.

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