

**BIBLIOMETRICAL ANALYSIS OF NEUROPHYSIOLOGICAL
INVESTIGATIONS OF ACTION OF
ELECTROMAGNETIC FIELDS IN
THE SECOND HALF OF THE XX CENTURY**

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Biological effects of electromagnetic fields (EMF) interested humanity for many centuries. Development of modern society is connected to the extensive use of electromagnetic fields of wide frequency and intensity range. The nervous system is of great significance in different reactions of animals and humans to EMF. Namely our pioneering investigations revealed predominant role of direct action of non-ionizing radiation of different kinds on brain structures [1].

Bibliometrical investigation of published material on electromagnetic biology was not carried out up to now. The present work is devoted just to bibliometrical examination of such published works, specifically on action of EMF upon neurophysiological objects. Some data on this trend were presented in our another works [4, 5].

MATERIALS AND METHODS

Information accumulated in world on neurophysiological effects of EMF during 35-year period in the later half of the XX-th century (1966-2000) was considered. The state of investigations of this trend was analyzed on the base of the database "Medline" accessible through Internet. Bibliometrical data concerned investigations performed in neurophysiological objects (the brain, the cortex, neurons, nerves) with application of EMF.

RESULTS AND DISCURSION

During 35-year period the general numbers of published works on biological effects of EMF reached great value - 6001. From them 2152 works were carried out in different neurophysiological objects. They included 1112 researches of action of EMF on the brain, 409 - on the cortex, 277 - on neurons, 354 - on nerves, that corresponded 51.67%, 19.01%, 12.89% and 16.45% from general totality. Distinctions between indicated events were mathematical certain ($U=19.71-2.07$; $p<0.01$).

Dynamics of the numbers of considered published works was studied. The considerable increase of the numbers of neurophysiological published works on action EMF took place during 35-year time interval, which reached 45.8 times. The number of works, carried out on the brain, increased at 48.6 times, carried out on the cortex - at 33.9 times, carried out on neuronal level - at 24.8 times and nerves - 29.6 times.

Positive correlation between the numbers of papers made in different neurophysiological objects with application EMF was found ($r=0.94-0.92$; $p<0.01$).

The prevalence of researches in the brain is result of increased interest of specialists in sphere of medicine and ecology to action of this physical factor. However exactly study on neuronal level is necessary for understanding of origin of reaction of organism on EMF [2, 3, 6, 7].

Obviously neurophysiological trend of investigation of biological action of EMF will hold a leading position at in future.

CONCLUSION

Results of bibliometrical investigations of neurophysiological published works on action of EMF are presented. The special features of quantitative characteristics of works, carried out in different neurophysiological objects (the brain, the cortex, neurons, nerves) are described. Unfortunately research of neurophysiological effects of EMF will have further development in XXI century [5].

REERENGE

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