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TITLE: The detection of C- and C_x-reactive protein in the blood serum during exposure of the organism to SHF electromagnetic waves

SOURCE: Byulleten' eksperimental'noy biologii i meditsiny, v. 61, no. 6, 1966, 53-55

TOPIC TAGS: SHF, microwave, hematology, animal physiology

→ probably CW

ABSTRACT: The presence of C-reactive human proteins and C_x-reactive rabbit proteins was studied as a function of exposure to decimeter- and centimeter-range emf's. Only small power densities (2-3 mw/cm²) were used on human subjects. Two male subjects were exposed to decimeter range fields for 1 hr daily over a period of 10 days while two others served as controls. Blood serum was examined twice before, three times during (2nd, 3rd, and 9th exposure), and four days after exposure. C_x-reactive proteins were determined in 379 tests on rabbits. Two series of exposures were tested on animals. The first series was made up of animals exposed once and the second series involved animals exposed 5-30 times once a day. Animals were exposed to both pulsed and nonpulsed centimeter waves with power densities of

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3, 10, 50, and 120 mw/cm². The duration of exposure to 3 and 10 mw/cm² was 1 hr/day. At power densities of 50 and 120 mw/cm² the exposure durations were 30 and 15 min respectively. Since no difference between the biological effect of pulsed and nonpulsed irradiation could be found, the results were expressed as a function of power density. Studies conducted on human subjects did not reveal C-reactive proteins in the serums of either irradiated or control samples. Results of studies conducted on rabbits exposed once showed C_x-reactive proteins in the majority of animals exposed to 50 mw/cm² for 30 min and in all animals exposed to 120 mw/cm² for 15 min. Thus, C_x-reactive protein was detected only in animals exposed to power densities greater than 10 mw/cm². If C_x-reactive proteins were already present in the blood, intensities less than 10 mw/cm² increased their content. The results of the second series were analogous to those of the first series in that the magnitude and frequency of response depended on power density. Repeated exposure did not necessarily increase the quantity of C_x-reactive proteins in the blood. Frequently, these proteins disappeared in spite of continued exposure. The reason for this is not clear but it is suspected that after a certain amount of time, C_x protein antibodies develop. During adaptation of the organism to emf's, these antibodies could serve to eliminate C_x-reactive proteins from the blood. Orig. art. has: 1 table. [CD]