I. We give (as usual) no preference to results of the Czech research work before other publications, and have no intention to list them or evaluate their quality. Instead, having almost nine years long experience with the ICNIRP limits (introduced in the Czech Republic in 2000 as a mandatory law), we have made an in-depth study in the relevant literature, and in the following text we shortly express our practical point of view about the present state of knowledge concerning electromagnetic fields and health. After our opinion, the results of massive research program, organized and supported by WHO since 1996, now allow formulate definite answers to important questions, which have long been under discussion.

1. **Electromagnetic hypersensitivity**, a hypothesized predisposition of some individuals to get ill after having been exposed to EMF far below the current limits, **does not exist**. This has convincingly been demonstrated by M. Landgrebe et al. [1] in 2008 by direct experiment, using the method of functional magnetic resonance imaging (fMRI). During sham exposure to a fictive (i.e., reported but non-existent) electromagnetic field, subjectively electrosensitive persons did experience real pain, and simultaneously the part of the brain which indicates pain or unpleasant sensations was activated, in spite of the absence of an external stimulus. This result is of great importance also for the treatment of subjectively hypersensitive patients because their health problems are real and often very serious. Anyway, removal of antennas or lowering exposure limits certainly is not the right way to relieve these people of their suffering.

2. A thorough evaluation of **possible health effects which would depend on the type of modulation of the electromagnetic wave** was made by P. Valberg, E. van Deventer and M. Repacholi [2]. The article includes a microphysical analysis of the impact of the electromagnetic field on biological tissue at the cellular, molecular and atomic levels, taking into account the content of frequency components of the modulation. The analysis has shown that modulation does not add any specific effect to the well known thermal effect of the field. The practical outcome of this conclusion also concerns the issue of looking for problems that have remained open or that already emerged: there is no reason in repeatedly studying potentially different health risks whenever a new technology using electromagnetic waves is being launched. The frequently used argument for further research that nothing or only little is known about the risks of exposure to electromagnetic waves emitted by devices using new technologies is unsubstantiated.

3. In the above mentioned article [2], Valberg, van Deventer and Repacholi also pointed out that long-term health risks associated with high-frequency fields must be evaluated taking into account the fact that radio and TV broadcasting have been widely used for more than 50 years, without any adverse effects on the population having been identified. As long as the modulation is irrelevant for the risk estimate, **no long-term adverse health effects** caused by the exposure to low-intensity, high-frequency electromagnetic fields can be expected.

4. The question of whether the (slightly) increased incidence of leukemia in children living in the vicinity of high-voltage power-transmission lines reported by several epidemiological studies has a causal association with the exposure to low-frequency (50 Hz or 60 Hz) magnetic field, had remained unanswered for almost thirty years. While epidemiological studies cannot prove a causal link, experiments on animals did not identify any carcinogenic effect, not even at field intensities orders of magnitude higher than those found near power lines. Also, despite intense efforts, no plausible mechanism able to explain such an influence of the magnetic field has been found.
Recently, the probability that the found association may be due to a bias, or confounder, has significantly risen after the finding by G. Draper [3]. Draper used a database of more than 9,000 cases of childhood leukemia recorded in Great Britain. He then collected addresses of the affected children and looked for the distance from the overhead high-voltage power line, in which each affected child lived. He indeed found increased incidence, but found it even within the distance 200 to 600 meters apart from the power lines. Dr. Draper himself commented on this unexpected result, saying that this increase cannot be a direct effect of magnetic field generated by electric currents flowing in the high-voltage power line. If the whole issue is not an artifact, Draper’s result redirects the research to other causes than the magnetic field exposure. Hence, the causal connection of enhanced incidence of childhood leukemia with the low frequency magnetic field seems to be extremely unlikely.

II. Since 2000, ICNIRP limits have been valid in the Czech Republic without any “amendments”. No lowering of the EMF limits is foreseen in the Czech Republic.

III. Since 2008, a rise of activity demanding lower EMF limits has been observed in our country, evidently connected with the well known “BioInitiative report” presented on the web sites and commented in a video record by Mrs Cindy Sage. The activity has graduated after Mrs Frederique Ries, EP member, submitted her document - based on the “BioInitiative report”- for voting in the European Parliament. Certainly, spreading of the false statements contained in the document will cause further health troubles to individuals sensitive to alarming news.

IV. Information about new results concerning EMF (now, e.g., about the explanation of electromagnetic hypersensitivity) is regularly put on the web sites of the National Institute of Public Health. Lectures for people engaged in the health protection are regularly organized and questions put by citizens are answered by phone, by individual letters or via e-mail.

References


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