

WHOLE BODY EXPOSURE EFFECT OF RADIO FREQUENCY/ MICROWAVE RADIATIONS

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Microwave (MW) at 2.45 GHz and Radiofrequency (RF) emissions from mobile phones at 900 MHz induce several effects on human health. At cellular level it may cause DNA single and double strand break in sperm and brain cells, which may promote apoptosis (programmed cell death) or DNA fragmentation. However, sperm cell death appears to be a cause of male infertility and brain cell death may induce tumor promotion. These effects consequences lead to cell proliferation, which may lead to cancer formation. Some biomarkers, which are responsible for tumour promotion or co-promotion have been identified which are, (1) Ca^{2+} , which is essential in the regulation of the resting membrane potential and in the sequence of events in synaptic excitation and neurotransmitter release are affected by electromagnetic field. (2) Melatonin, a hormone secreted by pineal gland. (3) Ornithine decarboxylase (ODC), a rate-limiting enzyme in the biosynthesis of polyamines can cause cell transformation and enhancement of tumor promotion. (4) Protein Kinase (PKC) which transfers phosphate groups from ATP to hydroxyl groups in the amino acid chains of acceptor proteins.

This reviews summarizes the current state of evidence concerning whether the RF/MW energy used for wireless communication might be carcinogenic. In the present discussion we explore the experimental mutagenic effect of these radiations on sperm and brain cells such as, decrease in sperm count, increase DNA strand break, apoptosis and certain bio markers in male wistar rats. A special attention was concerned towards the field interaction mechanism with body part and possibility of tumor promotion and infertility. Electromagnetic-field (EMF) exposure limits have been based, in part, on the amount of energy absorbed by the whole body. However, it is known that energy is absorbed non-uniformly by body tissues. EMF should be appropriately and precisely characterized when we consider its interaction with body. The major concern with mobile telephone technology is its rapid growth around the world, putting millions of users at potential risk and the emerging evidence for brain tumor and infertility.
