Abstracts

No Nonthermal Effect Observed Under Microwave Irradiation of Spinal Cord

J. Teng, D.C. de Tournai, F. Duhamel and A. Vander Vorst. "No Nonthermal Effect Observed Under Microwave Irradiation of Spinal Cord." 1996 Transactions on Microwave Theory and Techniques 44.10 (Oct. 1996, Part II [T-MTT] (Special Issue on Medical Application and Biological Effects of RF/Microwaves)): 1942-1948.

The paper presents an in vivo experiment concerning cerebral evoked potentials in the presence and in the absence of microwaves irradiating the spinal cord. An electrical stimulus is applied on the peripheral nervous system of a rabbit while the impulse response (evoked potential) is measured by an electrode in the cortex. The spinal cord is irradiated at 4.2-GHz by an implanted micro-antenna. The purpose of the experiment is to distinguish between thermal and possible nonthermal effects. A statistical treatment of the recorded data shows that there is a microwave effect. Power deposition is calculated. The bioheat equation indicates that the microwave irradiation results in a temperature increase within the spinal cord. Nonthermal effects were not observed.

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