

Exposure to Radio Frequency Waves of Mobile Phone and Temperature Changes of Brain Tissue

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Abstract : Introduction: Prevalent use of cell phones (mobile phones) has led to increasing worries about the effect of radiofrequency waves on the physiology of human body. This study was done to determine different reactions of the temperatures in different depths of brain tissue in confronting with radiofrequency waves of cell phones. Methodology: This study was an empirical research. A cow's brain tissue was placed in a compartment and the effects of radiofrequency waves of the cell phone was analyzed during confrontation and after confrontation, in three different depths of 2, 12, and 22 mm of the tissue, in 4 mm and 4 cm distances of the tissue to a cell phone, for 15 min. Lutron thermometer was used to measure the tissue temperatures. Data analysis was done by Lutron software. Findings: The rate of increasing the temperature at the depth of 22 mm was higher than 2 mm and 12mm depths, during confrontation of the brain tissue at the distance of 4 mm with the cell phone, such that the tissue temperatures at 2, 12, and 22 mm depths increased by 0.29 °C, 0.31 °C, and 0.37 °C, respectively, relative to the base temperature (tissue temperature before confrontation). Moreover, the temperature of brain tissue at the distance of 4 cm by increasing the tissue depth was more than other depths. Increasing the tissue temperature also existed by increasing the brain tissue depth after the confrontation with the cell phone. The temperature of the 22 mm depth increased with higher speed at the time confrontation. Conclusion: Not only radiofrequency waves of cell phones increased the tissue temperature in all the depths of the brain tissue, but also the temperature due to radiofrequency waves of the cell phone was more at the depths higher than 22 mm of the tissue. In fact, the thermal effect of radiofrequency waves was higher in higher depths.

Keywords : mobile phone, radio frequency waves, brain tissue, temperature

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