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Effects of radiofrequency radiation on human ferritin: an in vitro enzymun assay.

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Source

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Abstract

Ferritin is a macromolecule and is responsible for the long term iron storage function in human serum and plasma. Recent studies have highlighted the role of cell phone exposure on central nervous system, immune function and reproduction. The aim of this study was to investigate whether the human serum ferritin level could be interfered by the exposure to the 900 MHz GSM cell phones. Fifty human serum wells from 25 normal healthy donors were labeled with ruthenium to form a sandwich complex based on an immunoassay technique. All of them were placed into two batches, and the well heads in the first batch were exposed to 900 MHz exposure emitted from a speech mode cell phone (Nokia, Model 1202, India) for 30 min. Unexposed batch was served as the control sample under identical conditions and was compared with the exposed one in quantitative determination of ferritin using the Wilcoxon test with criterion level of $P = 0.050$. Human serum wells in the exposed batch showed a significant decrease in serum ferritin relative to the control batch ($P = 0.029$). The average \pm SD ferritin level in the exposed batch was $84.94 \pm 1.04 \mu\text{g/L}$ while it was $87.25 \pm 0.83 \mu\text{g/L}$ for the unexposed batch. Radiofrequency electromagnetic waves emitted from cell phones may lead to oxidative stress and rapid diffusion of the human ferritin level in an in vitro enzymun assay. Also, the enzyme activity can be affected. Effects of exposure from mobile phones must be considered further.

KEYWORDS:

Human ferritin, immunoassay test, radiofrequency radiation, ruthenium complex

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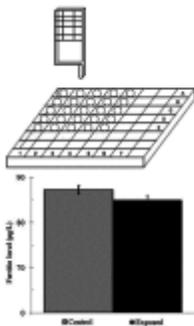
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