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Effect of radiation emitted from mobile phone on innate immunity in mice

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Abstract

This present study aims to explore the potential impact of cell phone radiation on innate immunity in mice. Ninety-six male BALB/C mice aged 2–3 weeks were randomly distributed into 4 groups as blank control, control, TD-SCDMA and LTE-Advanced respectively, with 32 mice in each group. Mice were designed to be exposed to cell phone radiation for 4–8 weeks. Eight mice in each group were taken out for measurement given exposure periods were 4, 6 and 8 weeks respectively. Cell biological

technique was conducted to assess the chemotaxis of neutrophils, and a morphological method was performed for the detection of phagocytosis of neutrophil and macrophage, while microbiological means was carried out to test the relative activity of lysozyme in serum of mice. As a result, the chemotaxis ratio of neutrophils was with little statistical difference among the four groups given a shorter exposure period. However, the ratios in TD-SCDMA and LTE-Advanced groups were decreased significantly on the condition that the exposure period was more than 6 weeks. No statistical difference was observed among the four groups during the entire exposure period in terms of the chemotaxis index. Phagocytosis of the innate cells as neutrophil and macrophage showed little change in the two control groups during the whole experimental stages, while the percentage in the two treated groups decreased statistically, and this kind of reduction was prone to feature time dependence. The activities of lysozyme in TD-SCDMA and LTE-Advanced groups declined significantly, further to that, the impact was climbing paralleled with the prolonged duration. It could be deduced that radiation from cell phones could weaken innate immunity in experimental mice; moreover, this adverse effect was seemingly more severe as the radiation exposure continued.
KEYWORDS: Cell phone radiation innate immunity neutrophil macrophage lysozyme

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Disclosure statement

No potential conflict of interest was reported by the author(s).