

The effects of long-term exposure with simulating cell phone waves on gonads of female Balb/C mouse

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Abstract

Introduction: Increasing mobile phone use in daily life has caused anxiety on the effects of its waves on the human health. The aim of this study was to investigate the effect of cell phone waves on the gonads and reproductive hormones (FSH, LH, Estradiol, progesterone) and mating percentage of female Balb/C mouse.

Materials and Methods: At first an experimental mobile phone system was designed, and adult virgin female Mice were exposed to cell phone waves for 40 days (6 hours per day) and their sera were applied for hormone assays of FSH, LH, Estradiol and progesterone. The size and weight of ovaries were recorded and their structures and ultrastructures were examined by light and transmission electron microscope. Some females were placed in a cage with males of the same strain for mating, then the pregnancy rate was estimated and their off springs were maintained in animal house until puberty. After puberty their ovaries were examined.

Results: The results did not show any significant differences in the size and weight of ovaries ($p>0.05$). Changes of Estradiol were not significant either ($p>0.05$). However, FSH, LH and progesterone levels did show significant changes ($p<0.05$). The results of transmission electron microscopy showed changes in ovary and follicles ultrastructures. The percentage of mating showed significant reduction in the test group ($p<0.05$).

Discussion: The results of this work showed cell phone waves caused change of oocyte ultrastructure and significant changes in endocrine system and causes decreased rates of mating.

Key Words: Electromagnetic waves, Cell phone, Mouse, Ovary, Fertility, Reproduction hormones, and Balb/C.

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