Effects of low density electromagnetic on heart tissue of male Rat

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Abstract

Background and Objective: The modern life condition has caused the human to be exposed to electromagnetic fields. Epidemiologic and animal laboratory studies have illustrated the adverse effects of electromagnetic fields on biologic systems. The aim of study was to assess the effects of low density electromagnetic on heart tissue of male rat.

Materials and Methods: In this experimental study 30 Wistar rats with weight of 10-150 gram and 5weeks age were used. Rats were allocated randomly in two equal groups: case and control. Experimenal group rats were exposed to the electromagnetic field 8 hours a day for 2 months (50 HZ, 1 mili Tesla). After 2months the rats were sacrificed, the heart tissues were removed and stained by H&E method.

Results: There was not any alterations in cells and tissue of control groups. In experimental group there was a sever disruptions on heart tissue, polymorphysm of cardiac myocyte nuclues with same hollow spaced in perinucluar, nuclear cytoplasm and fibrotic tissue. Also, the number and size of cells in case group were reduced. Cagulated necrosis and vacolization of cytoplasm of cardiac myocyte was observed in case group.

Conclusion: This study showed that low density of electromagnetic Fields for two months duration can cause pathological changes in cells and heart tissue of male rats.

Keywords: Electromagnetic Fields, Heart, Rat, Coagulated Necrosis, Fibrous

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