

عنوان مقاله:

Effects of Extremely Low Frequency Electromagnetic Fields and Simultaneous Treatment with Allium Cepa on Biochemical Parameters and Ultrastructure of Ovarian Tissues of Rats

محل انتشار:

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خلاصه مقاله:

Introduction: This study investigated the effects of extremely low frequency electromagnetic fields (ELF-EMF) (50 Hz, 3 mT) on biochemical parameters of rats' ovarian tissues and the impact of Allium cepa on the reduction of potential adverse influences of electromagnetic exposure. **Material and Methods:** In this study 40 female Wistar rats were divided into four groups, including (1) control group (with 3 cc normal saline), (2) ELF-EMF group (exposed to ELF-EMF, 50 Hz), (3) Allium cepa group (received 3 cc Allium cepa), and (4) ELF-EMF and Allium cepa group (exposed to ELF-EMF and simultaneously received Allium cepa daily for 6 weeks). **Results:** The MDA levels significantly increased in the second group, which were exposed to ELF-EMF and decreased in normal rats that received Allium cepa. Although, SOD, GPx, and CAT activities significantly decreased in ELF-EMF group, the combination treatment with Allium Cepa on exposed rats restored their activities to normal levels. The conduction of transmission electron microscopy study on ELF-EMF group revealed the changes regarding cytoplasmic organelles in the ovarian follicles of exposed rats. Moreover, irregular oocyte with damaged heterochromatic nuclei was observed. In degenerative oocyte, mitochondria lost their cristae. **Conclusion:** The results of the present study suggested that ELF-EMF exposure might cause deleterious effect on ovarian tissues in rats, which may lead to infertility and subfertility. Moreover, using Allium cepa as a nutritional supplement can have beneficial effects in the protection of biological antioxidants and reproductive systems in cases exposed to ELF-EMF.

کلمات کلیدی:

Antioxidant Electromagnetic Fields Ovary, Transmission electron microscope

