

Effect of electromagnetic field on mice epididymis and vas deferens - A morphometric study

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Abstract

Background and Objective: The growing development progress of electronic industries and the increasing use of electrical appliances have led to higher rate of exposure of people to electromagnetic field (EMF). Thus, in this study we investigated the effect of EMF on morphometric indices of epididymis and vas deferens in mice.

Materials and Methods: In this experimental study, 30 BALB/c male mice were selected and divided into three control, sham and experimental groups. Experimental group were exposed to 50 Hz, 0.5 mT EMF for 4 hours per days, 6 days per week for 8 weeks while the animal in control and sham groups were not exposed to EMF. After the exposure period, the mice were dissected and left testis was removed and weighted. Samples of epididymis and vas deferens in all groups were taken and were processed for routine light microscopic studies. The diameters of epididymis and vas deferens and the height of epithelial cells in all groups were compared using ANOVA and Tukey tests.

Results: The mean diameter of epididymis in EMF group significantly decreased compared to the control group ($P < 0.05$). The mean diameter of vas deferens, the height of epithelial cells in epididymis and vas deferens in EMF groups significantly decreased compared to the control and sham groups ($P < 0.05$). In addition, the weight of testes in EMF group significantly decreased compared to the control and sham groups ($P < 0.05$).

Conclusion: This study showed that the EMF exposure for long time could have hazard effect for the male reproductive system by decreasing the diameter of reproductive ducts, the length of epithelial cells and weight of testes.

Keywords: Electromagnetic field, Mouse, Epididymis, Vas deferens, Testis

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