



Effects of exposure to electromagnetic field (1.8/0.9 GHz) on testicular function and structure in growing rats

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ABSTRACT

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The aim of our study was to evaluate the possible effects of whole-body electromagnetic field (EMF) exposure on reproduction in growing male albino Wistar rats. The rats (2 days old) were randomly divided into three independent groups. The rats were exposed to EMF 1800 and 900 MHz for 2 hours continuously per day for 90 days. Sham control was kept under similar conditions except that the field was not applied for the same period. After blood samples were collected, the animals were sacrificed 24 h after the last exposure and the tissues of interest were harvested. The mean plasma total testosterone showed similarity among the two study groups and was significantly higher than the sham control rats. The percentage of epididymal sperm motility was significantly higher in the 1800 MHz group ($P<0.05$). The morphologically normal spermatozoa rates were higher and the tail abnormality and total percentage abnormalities were lower in the 900 MHz group ($P<0.05$). Histopathologic parameters in the 1800 MHz group were significantly higher ($P<0.05$). In conclusion, the present study indicated that exposure to electromagnetic wave caused an increase in testosterone level, epididymal sperm motility (forward), and normal sperm morphology of rats. As a consequences, 1800 and 900 MHz EMF could be considered to be a cause of precocious puberty in growing rats.

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