



Histopathological study on the effects of low-frequency electromagnetic fields on the testes of male rats

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Introduction: Due to the increasing use of devices generating electromagnetic fields in modern industrial societies, many concerns about the possible effects of these fields have been elevated in animals and humans.

Purpose: This study was conducted to investigate the effects of low-frequency fields on the testes of male rats.

Materials and Methods: Twenty male rats were divided in two groups as control and testing (each group has ten rats). The groups were treated for 2 weeks at ambient condition. After adaptation period, a test group 6 hours was under radiation in a day for 3 months. The control group was kept at a distance of 100 meters from mobile phone jammer device in another location on the same terms. After the necropsy, the testes specimens were fixed in 10% neutral buffered formalin, dehydrated in graded ethanol, cleared in xylene, and embedded in paraffin wax. Sections in 5 μm thicknesses were stained by hematoxylin and eosin (H&E) and, studied microscopically.

Results: Histopathological examination of testes revealed the cellular degeneration and necrosis of seminiferous tubules associated with syncytial cells formation, germ cell depletion and testicular atrophy. In addition, in some of the affected tubules interstitial hemorrhage and edema were observed. There were not any alterations in tissues of control group.

Discussion and conclusion: These findings indicate long-term adverse effects on testicular tissue are exposed to electromagnetic fields necessary measures for protection from potential damage it poses.

Key Words: Electromagnetic fields, rat, testis, histopathological