Abstract

Effects of mobile phone radiation and noise pollution on serum levels of LDH, thyroid hormones, liver enzymes, cortisol, and reproductive system in animals

Supported by: GREEN, IAS, AIC

Background

The expansion of mobile phones and noise pollution in the human environment has given rise to dangerous outcomes. In this study, the effects of exposure to noise and cell phone radiation on the serum levels of LDH, thyroid hormones, liver enzymes, cortisol, and reproductive system function and testicular histology of male rats have been analyzed.

Methods

Wistar rats were exposed to mobile radiation (930 MHz) and noise pollution (100 dB, 700 to 5700 Hz). After eight weeks of exposure, serum levels of LDH, thyroid hormones, liver enzymes, cortisol, and male reproductive hormones were measured using the enzyme-linked fluorescence assay method. Testicular tissue was also examined by H&E staining. Data were analyzed using ANOVA.

Results

The results showed that prolonged exposure to cell phone radiation and noise pollution increased the LDH levels, reduced the T3, T4, glutamic-pyruvic transaminase, cortisol, testosterone, LH, FSH levels, and decreased the number of spermatogonia and spermatocytes, serum glutamic-pyruvic transaminase and alkaline phosphatase.

Conclusion

Conclusively, long term exposure to mobile phone radiation and noise pollution leads to increased LDH, decreased T3, T4 and SGPT level, and had destructive effects on testicular tissue leading to decreased serum testosterone level as well as decreased spermatogonia, spermatocyte and Sertoli cells count.

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