Original Paper

Effect of red and infrared spectrum low level of laser rays on Rat Seminiferous tubules

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Abstract

Background and Objective: Laser is a source of electromagnetic radiation. Laser therapy has a kind of natural and biological effect on tissue which acts via energy and light power. Todays the use of infrared and red rays from low-power lasers have been established as a routine way for the treatment of diseases. Considering the important role of laser in biological sciences this study was done to compare the effect of red and infrared spectrum low level of laser rays on Rat Seminiferous tubules.

Materials and Methods: This experimental study was done on 40 male Rat which divided in four groups including one control and three experimental. In the first experimental group, the right testis of the rats was exposed to a mixture of 300 Hz infra-red ray for 7 minutes and 300 Hz red spectrum for 1 minute daily. In the second experimental group, the right testes were exposed to the 300 Hz infra-red ray for 8 minutes for 40 seconds daily. In the third experimental group, the right testes were exposed to 80 Hz infra-red for 5 minutes and 80 Hz red ray for one minute daily. The controls did not receive any rays. After 15 days, testes were dissected, fixed and stained for histological processing. Thickness of seminiferous tubules and lumen as well as the thickness and area of seminiferous epithelium were measured. The concentration of testosterone was determined with radioimmunoassay. Data was analyzed with SPSS-13 software and ANOVA test.

Results: There was a significant difference in the thickness of seminiferous tubules, thickness of lumen space and thickness of epithelium between first (i.e., the mixture of 300 Hz red and infra-red lasers), second (300 Hz infra-red laser) and the third experimental groups (80 Hz red and infra-red lasers) ($P<0.05$). But no difference was found between the first group and control. The serum testosterone concentration did not show any differences between experimental and control.

Conclusion: This study showed that morphologic and morphometric alterations have direct relation with laser energy density.

Keywords: Testis, Seminiferous tubules, Infrared spectrum, Low level laser

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