

Quantitative and Qualitative Changes of the Seminiferous Epithelium Induced by Ga. Al. As. (830 nm) Laser Radiation

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Background and Objectives: Low level laser radiation stimulates both nucleic acid synthesis and cellular proliferation in *E. coli*, Hela tumor cells, fibroblasts, lymphocytes, and thyroid cells. It has been introduced as a therapeutic modality; never the less few studies have been carried out to determine the effects of laser radiation on the testes or spermatogenesis. The aim of this study was to determine the quantitative and qualitative changes of the seminiferous epithelium after Ga. Al. As. (830 nm) laser radiation.

Study Design/Materials and Methods: The left testes of Sprague–Dawley rats were daily exposed to laser light for 15 days; so the cumulative doses used 28.05 and 46.80 J/cm² in two experimental groups. Sampling carried out 24 hours after the last treatment and samples were processed for LM and TEM study.

Results: The number of germ cells specially the pachytene spermatocytes and elongated spermatids increased after 28.05 J/cm² laser radiation. Ultrastructural features of germ and Sertoli cells in this group were similar to that of control; while laser irradiation at 46.80 J/cm² had a destructive effect on the seminiferous epithelium such as dissociation of immature spermatids and evident ultrastructural changes in them.

Conclusions: The findings confirmed the existence of a biostimulatory threshold of applied laser energy and the importance of determining it for clinical applications. Moreover, it was revealed that low doses of laser light have a biostimulatory effect on the spermatogenesis and may provide benefits to the patients with oligospermia and azoospermia.

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