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Original article

Impact of laser irradiation on regenerative processes of full thickness skin

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Abstract

A total of (twenty four adult New Zealand male rabbits), were used in this study, the animals were divided into (two groups); control and treated, (twelve rabbits each). All animals were underwent a whole thickness skin graft transplantation from the lateral aspect of one thigh to the lateral aspect of the other thigh. Treated group was irradiated with Ga.Al.As. diode Laser (904 nm) wave length and power (5mW) for (5min./session), (1cm) distance from the suturing line which was (2x2 cm), dimensions. Irradiation began at the time of transplantation directly and continued for (7 days) after that. Grafts of both control and treated group were examined clinically daily while (four animals) of each group were anaesthetized at the (days 3,7&10) post the operation and the samples collected from them were sent for histopatholgical examination. Clinically all the grafts seen vital and pinkish, while the line of the incision began to disappear after (3 days) of irradiation with diode laser comparing with the control group in which the line of incision began to disappear (7 days) after the transplantation, and the hair began to appear after (7 days) of irradiation with the diode laser while it began to appear (10 days) after the transplantation in the control group. Histopathologically samples manifested little inflammatory cells and proliferation of primitive microvascularization, after (3 days) of irradiation while the inflammatory cells were widly diffused at the site of transplantation in the control group for the dame period, results of examination of the sample collected after (7 & 10 days) revealed more maturation of the blood vessels and hair follicles which were numerous in addition to accomplishment of the epithelial migration while the blood vessels and hair follicles were few and the epithelial migration was rare in the samples collected from the control group for the same period.

Key words: Laser, Skin healing, Skin graft.

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