Iraqi Laser Scientists Journal (ILSJ)/ www.ilsj-online.org
Vol .1, Issue 1; Pp;11-16, 2017.

Original article

Role of low energy laser irradiation of the blood on the absorption of the antibiotics

*Rami Ali , **Mohammed S. Mehdi & ***Ihsan, F. Rostum
*Dept. of Laser Engineering- Al- Nahrain University, **Dept. of Applied Sciences -University of Technology ,***College of Dentistry – Al - Muthanna University

Abstract

The current work is designed to estimate the effect of Low Level Laser Therapy (L.L.L.T.) administered intravenously on the level of an antibiotic in the blood. It is known that the low level laser irradiation of blood exerts a powerful multiple component effects on quite a number of pathological conditions. It helps in rapid concentration of an administered drug to the blood which assists in treating of overwhelmed cases. Twenty eight adult male New Zealand rabbits were used in this study. They were divided into two equal groups depending on the method of administration of the antibiotic (the 1st. group injected with 10 mg/kg B.W of the antibiotic (Ampicillin) while the 2nd. group given the antibiotic in a form of gelatine capsules, containing 10 mg/kg B.W orally. Then each group was subdivided in to two equal subgroups (control and treated with laser therapy). GaAs diode laser device used for irradiation, it emits at 904 nm, and average power of 1 mW, it contains a connector and optical fiber with fine canula fixed to it's end . Blood of the animals of the treated subgroups was irradiated by introducing the fine needle of the canula into the marginal vein of the ear for 10 minutes. Samples of blood were collected from the animals of both groups at 1, 2, 3, 4, 5 & 6, hours intervals after the injection of the Ampicillin and sent for analysis using High Performance Liquid Chromatography (HPLC). The results of this study revealed a gradual increase in the level of the Ampicillin (ng/ml) in both groups up to the 2nd hours followed with rapid decrees of the drug till the end of the experiment, there was a highly significant increase in the level of the Ampicillin in the treated subgroups of both groups as compared with the control ones for approximately all the given hours $P < 0.01$, while the increase was significant only in the 3rd. hour of the intramuscular group. Irradiation of blood with low level laser increases the concentration of the Ampicilline in the serum whatever was the rout of it's administration, also the irradiation helps in rapid clearance of the blood from the drug.

Key Words: Ampicillin, Laser, Intravascular

To cite this article: Rami Ali , Mohammed S. Mehdi & Ihsan, F. Rostum; Role of low energy laser irradiation of the blood on the absorption of the antibiotics; Iraqi Laser Scientists Journal. Vol .1, Issue 1; Pp;11-16, 2017.