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Helium Neon Versus Gallium Aluminum Arsenide Laser Irradiation on Burn Wound Healing in Rats

By

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M.Sc. in Physical Therapy

A Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ .

سورة البقرة آية ٣٢

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The aim of this work were to explore the role of laser therapy application in burn wound healing acceleration and to detect the amount and frequency of laser therapy to decrease burn wound area. In this study 90 female albino rats, their mean age and weight were 6.49 ± 0.52 months and 179.96 ± 9.34 gram respectively. They were divided randomly into 3 equal groups: Group (1)(He-Ne group) 30 female albino rats which are further subdivided according to energy density into 3 equal group: group (I-A) which receive He-Ne laser at 1 J/cm^2 , group (I-B) which receive He-Ne laser at 2 J/cm^2 , and group (I-C) which receive He-Ne laser at 4 J/cm^2 , Group (2)(Ga-Al-As group) 30 female albino rats which are further subdivided according to energy density into 3 equal group: group (II-A) which receive Ga-Al-As laser at 1 J/cm^2 , group (II-B) which receive Ga-Al-As laser at 2 J/cm^2 , and group (II-C) which receive Ga-Al-As laser at 4 J/cm^2 , Group(3) (Control group) which doesn't receive any treatment. The result showed a significant difference between both groups and the control group regarding both WSA and colony count, also the best result obtained by He-Ne at intensity of 2 J/cm^2 .

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Before all and above all thanks to **GOD.**

EMAD TAWFIC

2001

Dedication

*This work is dedicated to
My parents and
My fiancé*

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LIST OF ABBREVIATIONS

He-Ne	Helium Neon
Ga-As	Gallium Arsenide
Ga-Al-As	Gallium Aluminum Arsenide
IR	Infra Red
mw	milli-watt
nm	nano-meter
Ant.	Anterior
Post.	Posterior
R.	Right
L.	Left
R.U.arm	Right Upper arm
L.U.arm	Left Upper arm
HO	Heterotopic ossification
NSAIDs	Non Steroidal Anti-Inflammatory drugs
LILT	Low Intensity Laser Therapy
ATP	Adenosine triphosphate
J/cm ²	Joule centimeter square
WSA	Wound Surface area
FDA	Food and Drug Association
IDE	Investigational Device Exemption
IRB	Institution Review Board
DNA	Deoxy ribonucleic acid
PG	Prosta-glandin
min	Minute

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