

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Sudan University of Science & Technology
Institute of Laser
College of Graduate Studies

تأثير الليزر ذو القوة المنخفضة في التئام قرح السكري المزمنة
*Effects of Low Level Laser Therapy on Chronic
Diabetic Foot Ulcer Healing*

A Dissertation submitted as partial fulfillment for requirements of the Degree of
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By:

Dr. Hanadi Abdalla Elamin Ali
MD Dermatology (Sudan Medical Specialization Board, 2007)

Supervisors:

Dr. Babikir Osman El Bashir
*phD of physic
laser institute*

Dr. Ihsan Abdrahman Abdallah
*Consultant of Dermatology
Consultant of Medical Laser*

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ABSTRACT

Diabetic ulcers complications are a leading cause of hospitalization and amputation, with a 15% life time risk in all diabetic patients. Many different methods have been proposed and their goal is to accelerate the wound healing. But these measures are often deficient to heal all diabetic ulcers when the patient's own intrinsic wound healing system is insufficient. So more effective treatments are essential. The objective of this study is to assess the effectiveness of low level laser therapy in wound healing in chronic diabetic foot ulcer in addition of routine wound care. This is the first study done in Sudan, in Jaber Abu Aliz Diabetic Center in the period from 15 February 2009 to 15 May 2009.

Forty three diabetic patients with chronic ulcer had been divided into two groups. Group 1 (23 patients) received low level laser therapy and nursing care, group II (20 patients) received only nursing care.

Initially the first group patient received low level laser therapy (diode laser) visible red wavelength (675) nm with energy density 4J/cm² and cluster 46 diode laser with energy density 9.6J/cm². Daily for one week, 3 consecutive sessions in the next week, then continue with 2 sessions per week in till the end of the study (3 months). The rate of healing in laser group is 57,4%, while in the control group is 29,5%. Six patients (26%) achieved 100% wound closure and 52% achieved more than 50% of healing during this period in group I, while in control group one patient

(5%) achieved 100% wound closure and 10% achieved more than 50% of healing during this period. Comparison between the laser and control group in rate of healing showed significant difference between two groups by t-test, P Value is (0.004). We noticed dramatic response in pain relief in majority of patients in the laser group. There is a need to develop alternative treatment modalities which can improve the endogenous capacity of healing process, particularly during conditions with impaired wound healing. Using laser as a source of photobiostimulation is an attractive branch in medicine for the future. The study findings suggest that low level laser therapy is safe, accelerates wound healing, with the added potential benefit of decreasing pain and increasing sensation

ملخص الاطروحة

من مضاعفات قرح السكرى المكوث فى المستشفى وبتر الاطراف ,مع حوالى 15%خطورة على حياة المريض .هناك الكثير من طرق العلاج التى تم استخدامها فى علاج قرح السكرى التى كان لها الدور فى التئام هزة القرع,الا انها قد تكون غير مجدية فى علاج بعض قرح السكرى المزمنة ونتيجة وجود خلل فى نظام التام الجروح داخليا .لذا ايجاد طريقة فعالة لعلاج قرح السكرى ضرورة .الهدف من هزة الدراسة تقييم اثار الليزر ذو القوة المنخفضة فى علاج قرح السكرى المزمنة باضافة الى العلاج التقليدى.هذه الدراسة هى اول دراسة فى السودان,وقد اجريت فى مركز جابر ابو العز فى الفترة مابين 15من فبراير حتى 15من مايو 2009 .

43 مريض مصاب بقرح السكرى المزمنة قسموا إلى مجموعتين. مجموعة 1 (23 مريضا) تم علاجهم بالليزر ذو القوة المنخفضة والعلاج التقليدى. المجموعة الثانية (20 مريضا) تتلق العلاج التقليدى فقط.

فى المجموعة الأولى يتلقى المريض العلاج بالليزر ذو القدرة المنخفضة باستخدام الطيف الاحمر بموجة طولها (675) شدة طاقة قدرها 4 والاطياف المتعدد شدة طاقة قدرها 6.9 يوميا لمدة اسبوع واحد ،ثم يوم بعد يوم لمدة اسبوع اخر ثم تواصل الجلسات مرتين اسبوعيا. (6) من المرضى (26%) قد تم لهم الشفاء التام للقرح، (52%) تم الشفاء لديهم بنسبة أكثر من (50%)،بينما تم الشفاء التام للقرح فى مجموعة الثانية بنسبة (5%)، وتم الشفاء بنسبة اكثر من (50%) لدى (10%) من المرضى.مقارنة بين نسبة الالتئام بين المجموعتين لوحظ فرق بين المجموعتين باستخدام اختبار ت (0.004). خلال فترة الدراسة لوحضت استجابة هائلة فى تخفيف الألم عند غالبية المرضى فى المجموعة الاولى الذين كانوا يعانون من الألم المزمن.هناك ضرورة لاجاد طريقة علاج فعالة لعلاج قرح السكرى المزمنة استخدام الليزر ذو القوة المنخفضة فى علاج قرح السكرى المزمنة يعتبر علاج بديل.وقد اتضح فى هزة الدراسة ان العلاج بالليزر ذو القوة المنخفضة لقرح السكرى يسرع التئام القرع ويخفف الألم .

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