



The Effect of Low Level Laser Therapy in Treatment of Pityriasis Versicolor (In Sudanese Patients)

KEYWORDS

Pityriasis versicolor, Sudanese patients, LLLT,

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ABSTRACT Pityriasis versicolor is a chronic skin infection caused by Malassezia yeast. The patients presented mainly with itching and psychological upset from its cosmetically unacceptable appearance. The aim of this study was to determine that low level laser therapy (diode laser) is an effective treatment for pityriasis versicolor with less or without any side effects.

Low level diode laser (Omega XP) was used with cluster probe 46, multipulse mode, exposure time 3 minutes/area which was 10-15 cm in diameter, fluence 14.4 J/cm² and repetition rate of 1, 5 & 10 KHZ. Photographs were taken prior and after treatment. The operating dermatologist and the patients evaluated the effect of treatment. This study revealed that low level laser therapy provided relief from itching following few sessions in most of the patients and by the end of the study all the patients were free from itching and scales.

This study concluded that the LLLT (diode laser) is efficient and safe in the treatment of pityriasis versicolor.

Introduction:

The skin is the largest organ in the human body. It weighs about 4 kg and has surface area of 1.7 - 2 m². The skin is composed of a stratified, cellular epidermis and an underlying dermis of connective tissue, below which lies the hypodermis or subcutaneous tissue.

Pityriasis versicolor is a chronic infection of the skin caused by Malassezia yeast, and characterized by discrete or confluent, scaly, discolored or depigmented areas mainly on the upper trunk (3). These skin lesions may be associated with itching.

Microscopy of the scales of pityriasis versicolor reveals thick-walled spherical yeast forms budding from a narrow base, and coarse, septate mycelium often broken up into short filaments.

Conventional treatment of pityriasis versicolor:

- * A topical preparation of one of the azole group of antifungal drugs as clotrimazole and miconazole can be applied at night for 2-4 weeks. The main problem with the use of topical antifungals is the difficulty of applying creams to such a wide body surface area.
- * Equally effective, but messier and more irritant, is a 2.5% selenium sulphide mixture in a detergent base. This should be applied on the patches after an evening bath and washed up next morning. Three applications at weekly intervals are adequate.
- * Ketoconazole shampoo is less messy but as effective as selenium one.
- * Systemic itraconazole (200 mg daily for 7 days), are used for widespread or stubborn infections. Also systemic Ketoconazole; others may require longer periods of treatment.

Objectives of the study:

The objective of this study is to determine the efficacy of the low level laser therapy (diode laser), by using cluster probe in treatment of pityriasis versicolor with less or with-

out any side effects. Also to avoid undesirable or adverse effects caused by conventional treatment of pityriasis versicolor e.g. hepatotoxicity.

Materials and methods:

The study was done in the Institute of Laser; Sudan University of Science and Technology, Khartoum-Sudan on Sudanese patients in January 2011.

This is a prospective study where the patients were randomly selected.

Sample size was seven patients; one patient was lost after two sessions, so excluded from the study. The patients were interviewed and questionnaire sheets for them filled. All patients were treated by low level laser therapy.

Inclusion criteria: Chronic patients, all ages and both sexes were included.

Exclusion criteria: Pregnant ladies and patients with lesions over glandular areas were excluded.

Ethical considerations:

All patients involved in this study were requested to participate voluntarily and they signed a written informed consent before being enrolled in this study. They were informed about possible adverse effects and the hazards of the laser therapy.

The laser medical system:

The laser system used in this study was low level laser which is a super luminous diode laser (Omega XP). Its active medium is a semiconductor (Gallium Aluminum Arsenide).

We used a cluster probe 46, multipulse mode, exposure time 3 minutes/area which was 10 -15 cm in diameter, fluence 14.4 J/cm² and repetition rate of 1, 5 and 10 KHZ.

Data analysis:

The data were analyzed using statistical package for social science (SPSS).

Ages of the patients ranged from 23 to 68 years with a mean of 40.5. Most of the patients lied between 20 and 40 years.

Although both sexes are equally affected, all patients in this study were males.

The patients have different occupations, two patients (33.3%) are merchants; others are student, laborer, engineer and university professor as one patient (16.7%) for each.

The duration of the disease ranged from 1 to 30 years with mean 9.83.

The lesions were on the upper arms, chest, abdomen and back. No facial lesions. All patients were presented with lesions on the chest (100%), five patients with lesions on the back (83%), four with lesions on the abdomen (66.7%) and three with lesions on the upper arms (50%).

2 patients (33.3%) presented with psychological upset from its appearance only while 4 patients (66.7%) with both, cosmetically not accepted appearance and itching.

Four patients (66.7%) have family history of a similar condition while two (33.3%) have not

Five patients (83.3%) received previous treatments while one (16.7%) did not receive any treatment.

RESULTS

All patients had been treated by low level laser therapy with the same parameters. The patient number one received two sessions only and did not complete his treatment, so was excluded from the study; thus six patients had completed their sessions. The patients had been examined for disappearance of itching and scales.

Two patients had been presented without itching (33%). Two patients (33%) showed relief from itching after three sessions, one (16.7%) after four sessions and one patient (16.7%) needed twelve sessions for itching disappearance (Table 3.1).

Session	Frequency	Percent
0	2	33.3
3	2	33.3
4	1	16.7
12	1	16.7
Total	6	100.0

Seven to ten sessions were needed for scales clearance by three patients (50%) while three patients (50%) needed twelve sessions to reach this result (Table 3.6, Fig. 3.4-3.10).

Table 3.2 Scales disappearance

Session	Frequency	Percent
7	1	16.7
8	1	16.7
10	1	16.7
12	3	50.0
Total	6	100.0

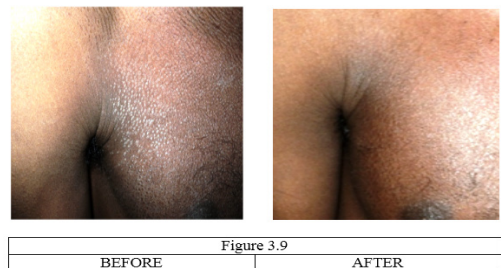
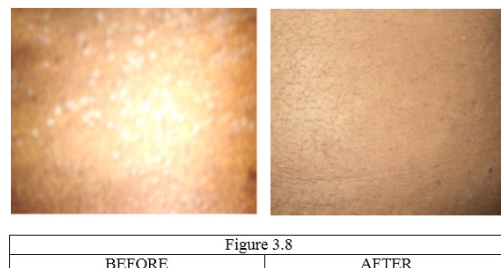
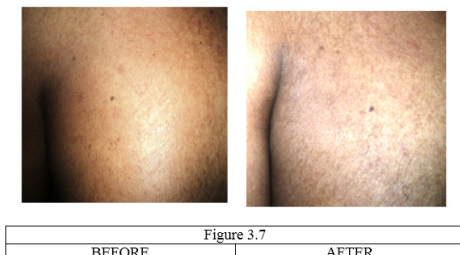
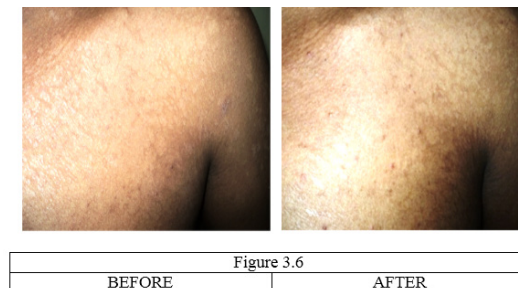
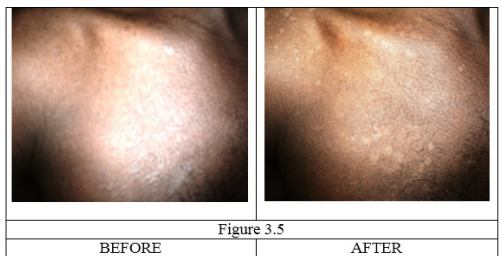
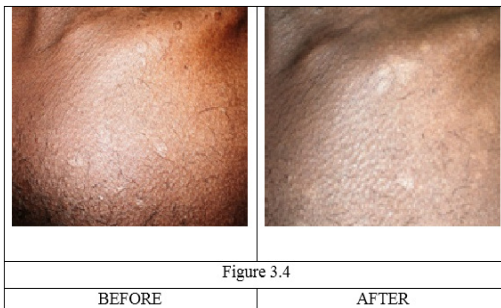




Figure 3.10

BEFORE

AFTER

Discussion:

As far as I looked in the literature, I did not find any study about the effect of low level laser therapy in treatment of pityriasis versicolor, but there were some studies about the effect of this laser in the treatment of *Candida* species which are related to the causative organism of the pityriasis versicolor.

This study demonstrated that low level laser therapy is efficient and safe in treatment of pityriasis versicolor. Regarding the symptoms from which the patients complained, all the patients showed relief from itching, but this occurred at different numbers of sessions. Most of the patients had been relieved from itching during the first four sessions and one patient needed twelve sessions to show disappearance of itching.

The other indicator of success of treatment was the disappearance of scales which means eradication of the causative organism. This condition took more sessions than those needed for relief from itching. Two patients needed less than ten sessions while the others needed from ten to twelve sessions. Five patients showed hypopigmentation after treatment while one patient showed complete disappearance of the lesions.

The laser application was comfortable for the patients. No pain, burning sensation or other side effects occurred during or after the procedures.

Undesirable or adverse effects caused by conventional treatment of pityriasis versicolor e.g. hepatotoxicity, were avoided in this study.

Conclusion:

The LLLT (diode laser) is efficient and safe in the treatment of pityriasis versicolor as revealed in this study by disappearance of itching and scales.

Recommendations:

* Other studies in treatment of pityriasis versicolor by using LLLT laser with other laser parameters can add to this promising field.

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