

CLINICAL REPORT



Effectiveness of the pulsed low power Laser Therapy
(LLLT) in the treatment of “ Humeral Epicondylitis ”

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Dr. Aldo Vasta
Surgeon
Scientific Consultant
EME s.r.l. Pesaro

INTRODUCTION

The treatment of the humeral epicondylitis with the low power laser therapy is carried out not only in Italy, but also abroad. Nevertheless, the various essays that have been published on the topic regarding the effectiveness of the treatment and the dosage to administer are still controversial. Although many studies have obtained good results, the revision of the literature on the topic in Europe, USA and Russia reveals incoherent results as far as the applied dose in joule for cm², and the final results regarding the relief of the pain and its functionality is concerning. Further researches are needed regarding the low power laser therapy comparing with other methods of treatment. And besides humeral epicondylitis is a condition that is difficult to treat because of the tendency to relapse and to chronicity.

This research supports the correct application of the therapy in the elbow of the tennis player, as well as the necessity of further researches on the topic. The relatively high predominance of humeral epicondylitis, together with the difficult management of the relapse, the recurrence of the symptoms and the possibility to use the laser as therapeutic tool in their treatment is what supplied the justification for the execution of this clinical case.

SCIENTIFIC PROBLEM

No scientific uniformity of criteria regarding the use of the low frequency laser therapy (LLLT) for the treatment of humeral epicondylitis and of its results.

WORK HYPOTHESIS

By applying the laser therapy in the treatment of humeral epicondylitis it is possible to reduce the frequency of the relapses of the symptoms and of the clinic marks correlated (functional weakness of the hand with loss of force in the forearm).

OBJECTIVES

General

To appraise the effectiveness of the laser therapy in the treatment of humeral epicondylitis.

Specific

To identify the sample based on the duration of the evolution of the illness in the moment of the diagnosis.

To compare the evolution of the symptoms and marks before and after the laser therapy.

To determine the necessary time of treatment to obtain a favourable reaction to the treatment and the degree of satisfaction of the patient. To determine the presence of unfavourable reactions during the treatment.

OBJECTIVES AND METHOD

The research applied in the present study has been carried out at the health clinic of Physiotherapy and Rehabilitation "Medical Fisio Center" of Curinga (CZ) - Italy, and was developed by the scientific consultant of the company EME-srl (Pesaro – Italy) in the period between June 2009 and June 2010.

The participants in the study were those patients (200) who were treated in the department of physiotherapy of the health clinic Medical Fisio Center with the diagnosis of humeral epicondylitis (acute and sub acute).

CRITERIA FOR THE CHOICE OF THE SAMPLE

Diagnostic criteria

- Patients that suffer from pain localized in the zone of the epicondyle that at first begins insidiously and later increases gradually with the rhythm of the physical activity, with the extension of the finger and the extension of the pulse, which is usually unilateral, and can be accompanied by inflammation.

Criteria of inclusion

- Both male and female
- Patient's approval
- Patients that presents a chronic and sub-acute course of the illness.

Criteria of exclusion

- The patients with an acute course of the illness.
- Women in state of pregnancy.
- Patient with ascertained or assumed malignant neoplasia.
- Patients who did not sign the informed approval to the treatment of personal data.

Criteria of exclusion during the study

- Those who voluntarily left the study.
- Patients that were in a fever during the course of the study.
- Patients that require to associate the laser with other treatments.

TREATMENT DESCRIPTION

Type of treatment: laser therapy with infrared laser system Lasermed 2200- Medical Italia in Pesaro (THE) with monodiode laser handle from 17mW,200nsec, 905 nm of wave length

Regime of treatment: continuous

Applicator: Monodiode handle

Application: in contact with the painful epicondyle of the humerus

Description of the treatment: (CW)

Dosage chosen (density of energy): Subacute (4j/cm²), chronic (4j/cm²).

Time treatment for point: about 6 min

Power: 17 mW

Dimensions of the zone of treatment: Area 1 square centimeter with point stimulation.

Frequency of the treatment: 1. Sub-acute: daily. 2. Chronic: 3 times a week

The doctor described the patient how the treatment will be carried on:

- 1. he finds the sensitive point with the palpation.
- 2. he cleans the zone to be treated with alcohol.
- 3. the treatment was carried out perpendicularly to the skin.
- 4. during the treatment, both the patient and the therapist were equipped with protective glasses.

EVALUATION OF THE EFFECTIVENESS OF THE LASER THERAPY

The doctor made a weekly monitoring of the results on the patients, collecting the data in the survey (attachement 2) performed for the effect obtained on every patient. The following variables have been used to evaluate the effectiveness:

Subordinate variable

- Effectiveness of the laser therapy in the treatment of humeral epicondylitis.

Independent variables

- Evolution of the symptoms and the marks before and after the treatment.
- The evaluation of the muscular force was realized by means of:

Criteria to create a list for the evaluation of the muscular balance.

- Muscular of degree 5 (Normal)
 - Muscular of degree 4 (Good)
 - Muscular of degree 3 (Acceptable)
 - Muscular of degree 2 (Normal)
 - Muscular of degree 1 (Minimal)
 - Muscular of degree 0 (not present)
- Time of reaction to the treatment.
 - Positive reaction to the treatment (when the patient has an excellent or good reply).
 - Patients' satisfaction

STATISTICAL EVALUATION

The information was collected from the survey and analyzed with the statistical program SPSS for Windows version 10,0, from which the descriptive statistics was obtained: absolute and relevant frequency and the inferential statistics: the test of proportion of the hypothesis with categories mutually excluding with a reliability of 95% ($\alpha = 0,05$).

CONCLUSIONS

The low power laser therapy was effective for the treatment of humeral epicondylitis.

There was a predominance of patients with epicondylitis at a sub acute stadium at the moment of the diagnosis.

The comparison between the presence of symptoms and marks, at the end of the treatment, in the patients in a subacute and chronic stadium did not show significant differences.

The choice of the laser therapy allowed the resolution of epicondylitis on average in two weeks, with a high degree of satisfaction of the patient.

There were no unfavourable reactions to the laser therapy in the patients.

Results and discussion

SYMPTOMS AND MARKS BEFORE AND AFTER	%	#	%
Pain	50	100	18
Inflammation	19	38	8
Decreasing of the muscular force	20	40	0
Cozen's sign	50	100	4
Total amount	50	100	50

Table 1 Analysis based on the symptoms and marks before and after the treatment.

REACTION TO THE TREATMENT	NUMBER OF PATIENTS	%
Excellent	25	50
Good	15	30
Regular	6	12
Absent	4	8
Total amount	50	100

Table 2. Analysis based on the reaction to the treatment.

UNFAVORABLE REACTIONS	NUMBER OF PATIENTS	%
Yes	50	0
No	50	100
Total amount	50	100

Table 3. Patient with unfavorable reactions to the laser treatment.



MEDICAL ITALIA

EME's s.r.l. division.
Via degli Abeti 88/1
61122 Pesaro (PU) - Italy
Ph +39 0721 400 791 Fx +39 0721 26 385
info@eme-srl.com
www.eme-srl.com