Clinical Trial Protocol
Iranian Registry of Clinical Trials

17 Sep 2026

The dose response effects of low level and high power laser therapy on pain and electrophysiological parameters of median nerve in subjects with carpal tunnel syndrome

Protocol summary

Summary

The purpose of this study is to investigate the effects of low level and high power lasers therapy on pain and electrophysiological parameters of the medial nerve in patients with carpal tunnel syndrome. The inclusion criteria are age range of 20 to 60 years old and moderate carpal tunnel syndrome based on electromyography findings. Exclusion criteria are mild or severe carpal tunnel syndrome based on electromyography findings as well as secondary neuropathy and history of head and neck surgery. The target population are people aged 20-60 years with moderate carpal tunnel syndrome who will be referred to medical centers of Guilan University of Medical Sciences in the second half of the year. The patients will be randomized into 5 groups and each will be treated for 5 sessions with low level or high-power laser, one group is a control group. The sample size for each group is 20 people and 100 totally . The main outcomes of this study are pain and electrophysiologic parameters of median nerve that will be measured before and 20 days after the intervention.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2017051634003N1**
Registration date: **2017-10-05, 1396/07/13**
Registration timing: **registered_while_recruiting**

Last update:
Update count: **0**

Registration date

2017-10-05, 1396/07/13

Registrant information

Name

Kamran Ezzati

Name of organization / entity

Guilan University of Medical Sciences

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Recruitment status

Recruitment complete

Funding source

Guilan University of Medical Sciences, Deputy of research

Expected recruitment start date

2017-03-20, 1395/12/30

Expected recruitment end date

2018-03-20, 1396/12/29

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The dose response effects of low level and high power laser therapy on pain and electrophysiological parameters of median nerve in subjects with carpal tunnel syndrome

Public title

Laser in carpal tunnel syndrome

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: Age between 20-60 years; Having moderate carpal tunnel syndrome based on

electromyographic findings; involvement of sensory and motor fibers provided that no one is absent; sensory delay of more than 3.6 msec and motor delay more than 1/4 millisecond. Exclusion criteria: Individuals with severe and mild carpal tunnel syndrome: In severe patients sensory and motor waveforms are absent, and there is a decrease in the amplitude of motor nerve and denervation in electromyography, but in the mild type, only the involvement of sensory fibers without the involvement of motor fibers is present and sensory delay of more than 3.6 ms and a motor delay less than 1.4 ms; people with secondary neuropathy, such as thyroid problems; people with neck and shoulder myopathy; myelopathy and torticollis; those with a history of neck and shoulder surgery and other areas of the body; people with cancer, infection, pain and pulmonary disease, HIV; people with substance abuse or taking corticosteroids; pregnant women; people who have been continuously did physiotherapy or exercise during the past two weeks; taking analgesic and inflammatory drugs one week before the evaluation; people with Mental and cognitive impairment as well as uncorrected visual impairment; patients with atrophy of ternar muscle.

Age
From **20 years** old to **60 years** old

Gender
Both

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **100**

Randomization (investigator's opinion)
Randomized

Randomization description

Blinding (investigator's opinion)
Double blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features
The data collection method will be randomized clinical trials in 5 treatment groups. For this purpose, a questionnaire containing the information, height, weight, type of exercise, upper limb, were given to the subjects.

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Guilan University of Medical Sciences, Deputy of research

Street address
Deputy of Research, Opposie to Azodi Stadium, Namjoo St, Rasht, Iran

City
Rasht

Postal code

Approval date
2017-03-04, 1395/12/14

Ethics committee reference number
Ir.Gums.rec.1395.371

Health conditions studied

1

Description of health condition studied
Carpal tunnel syndrome

ICD-10 code
G56.0

ICD-10 code description
Carpal tunnel syndrome

Primary outcomes

1

Description
Delay amp area CAMP- Motor & Sensory NCV

Timepoint
Before and after 20 days

Method of measurement
Nerve conduction velocity

Secondary outcomes

1

Description
Pain

Timepoint
Before and after 20 days

Method of measurement
Visual Analogue Scale

Intervention groups

1

Description
Intervention group 1: Low level laser 50 mW, 8 J/cm2 on 10 points each point 19 seconds irradiation and 4 type exercises.

Category
Rehabilitation

2

Description
Intervention group 2: Low level laser 50 mW, 20 J/cm2 on 10 points each point 15 seconds irradiation and 4 type exercises.

Category
Rehabilitation

3

Description
Intervention group 3: High power laser 5W, 8 J/cm2 on 20 cm2, 64 seconds irradiation and 4 type exercises.
Category
Rehabilitation

4

Description
Intervention group 4: High power laser 5W, 20J/cm2 on 20 cm2, 160 seconds irradiation and 4 type exercises.
Category
Rehabilitation

5

Description
Control group: 4 type exercises: Wrist extension, stretching the hand on table while standing, open and closing fingers, stretching the hand with opposite one.
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Poursina hospital
Full name of responsible person
Kamran Ezzati
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Physiotherapy section, Block 2, , Poursina hospital, Namjoo St, Rasht
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Guilan University of Medical Sciences
Full name of responsible person
Dr Shadman Nemati
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Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Guilan University of Medical Sciences
Proportion provided by this source
100
Public or private sector
empty
Domestic or foreign origin
empty
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
empty

Person responsible for general inquiries

Contact
Name of organization / entity
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Sharing plan

Deidentified Individual Participant Data Set (IPD)
empty

Study Protocol
empty

Statistical Analysis Plan
empty

Informed Consent Form
empty

Clinical Study Report
empty

Analytic Code
empty

Data Dictionary
empty