Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Evaluation of the Effects of Tecar therapy and High-power Laser on the management of the Trigger Points of Upper Trapezius

Protocol summary

Study aim
Investigating the effect of high power laser and Tecar therapy on pain intensity, neck disability index, and neck range of motion in patients with a trigger point of the upper trapezius muscle.

Design
A clinical trial with two intervention groups and a control group, with parallel groups, one-blind, randomized, on 48 patients, block method was used for randomization.

Settings and conduct
This study will be conducted with the voluntary participation of people suffering from myofascial pain syndrome (trigger point) of the upper trapezius muscle in the physiotherapy clinic of the rehabilitation faculty of Hamedan University of Medical Sciences. The sampling method in this research is done in the form of convenient sampling. The samples are randomly divided into three groups. The first group is treated with Tecar therapy and routine physiotherapy treatment, the second group is treated with high-power laser and routine physiotherapy treatment, and the control group is also treated with routine physiotherapy treatment. None of the patients know about the groupings and the type of intervention.

Participants/Inclusion and exclusion criteria
Age 18 to 40 years old, the presence of a trigger point and a tight band in the upper trapezius muscle according to the opinion of Simon et al.

Intervention groups
Tecar therapy group: Tecar therapy will be used in both capacitive and resistance modes for 5 sessions a week and a total of 10 sessions in the pain area on the trapeze. High-power laser group: high-power laser with wavelengths of 810 and 980 nm and power of 15 watts will be used for 5 sessions a week and a total of 10 sessions in the pain area on the trapezius. Control group: routine physiotherapy will be used for 5 sessions a week and a total of 10 sessions in the pain area on the trapezius.

Main outcome variables
Pain intensity; neck disability index and neck range of motion

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20190202042581N4**
Registration date: **2022-09-11, 1401/06/20**
Registration timing: **prospective**

Last update: **2022-09-11, 1401/06/20**
Update count: **0**

Registration date
2022-09-11, 1401/06/20

Registrant information

Name
Mohammad Reza Asadi

Name of organization / entity

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Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2022-09-23, 1401/07/01

Expected recruitment end date
2024-03-19, 1402/12/29

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Evaluation of the Effects of Tecar therapy and High-power Laser on the management of the Trigger Points of Upper Trapezius

Public title
Evaluation of the Effects of Tecar therapy and High-power Laser on the management of the Trigger Points

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Age 18 to 40 years old Presence of trigger point and tight band in the upper trapezius muscle according to Simon et al Diffuse pain in response to pressure on trigger points

Exclusion criteria:
Having a history of neck surgery Neck discopathy Pregnancy Whiplash injury The presence of metal in the body Pacemaker

Age
From **18 years** old to **40 years** old

Gender
Both

Phase
N/A

Groups that have been masked

- Participant

Sample size
Target sample size: **48**

Randomization (investigator's opinion)
Randomized

Randomization description
Participants are placed in one of the three study groups by a simple randomization method with the help of a lottery. The researcher gives a special code or number to each participant. Then he writes down the number of each of them on a small piece of paper or cardboard; Then he pours them into a bag or container and stirs them. Then he takes out the beads one by one, writes down their number, and continues until he chooses a number equal to the sample size. Opaque envelopes are also used to conceal randomization allocation.

Blinding (investigator's opinion)
Single blinded

Blinding description
None of the participants will know about the type of intervention.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics committee of Hamedan University of Medical Sciences

Street address
Hamedan University of Medical Sciences, Fahmideh Blvd

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Province
Hamadan

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6517838736

Approval date
2022-08-20, 1401/05/29

Ethics committee reference number
IR.UMSHA.REC.1401.474

Health conditions studied

1

Description of health condition studied
Myofascial pain syndrome

ICD-10 code
M99.01

ICD-10 code description
Segmental and somatic dysfunction of cervical region

Primary outcomes

1

Description
Pain severity

Timepoint
First session (before intervention), and 10 day (after intervention)

Method of measurement
Visual Analogue Scale

Secondary outcomes

1

Description
Neck disability index

Timepoint
First session (before intervention), and 10 day (after intervention)

Method of measurement
Neck Functional Disability Questionnaire

2

Description
Neck range of motion

Timepoint
First session (before intervention), and 10 day (after intervention)
Method of measurement
Goniometer

Intervention groups

1

Description
Intervention group: Capacitive Tecar is used for 10 minutes with a frequency of 600 kHz and resistive Tecar is used for 10 minutes with a frequency of 450 kHz. Intensity in both types of massage is 10-12 watts for an area of 28.2 square centimeters, on the trigger point of the upper trapezius muscle, for 10 sessions.
Category
Rehabilitation

2

Description
Intervention group: A high-power laser with a wavelength of 810 and 980 nm, a power of 15 watts, a frequency of 20 to 100 kHz and a duty cycle of 20 to 50% is used on the trigger point of the upper trapezius muscle for 10 sessions.
Category
Rehabilitation

3

Description
Control group: Routine physiotherapy includes: 20 minutes of low-frequency TENS, 15 minutes of infrared on the trapezius muscle, and exercise therapy (including neck stabilization exercises and passive stretching of the trapezius muscle).
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Mobasher clinic
Full name of responsible person
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Sponsors / Funding sources

1

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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
Hamedan University of Medical Sciences
Proportion provided by this source
100
Public or private sector
Public
Domestic or foreign origin
Domestic
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
Academic

Person responsible for general inquiries

Contact
Name of organization / entity
Hamedan University of Medical Sciences
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Sharing plan

Deidentified Individual Participant Data Set (IPD)
Undecided - It is not yet known if there will be a plan to make this available
Study Protocol
Undecided - It is not yet known if there will be a plan to make this available
Statistical Analysis Plan
Undecided - It is not yet known if there will be a plan to make this available
Informed Consent Form
Undecided - It is not yet known if there will be a plan to make this available
Clinical Study Report
Undecided - It is not yet known if there will be a plan to make this available
Analytic Code
Not applicable
Data Dictionary
Undecided - It is not yet known if there will be a plan to make this available