

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

Effects of Single Session Intramuscular Electrical Stimulation through Dry Needling on Pain and Dysfunction Following Trigger Points in Upper Trapezius Muscle

Protocol summary

Summary

Background and Objective: Myofascial Pain Syndrome (MPS) is a common disorder of musculoskeletal system. About one third of people with musculoskeletal disorders have been identified as the MPS. The MPS cause by trigger points. Variety of treatment methods is applied to care the MPS and relative disorders. The purpose of this study is to investigate effects of single session Intramuscular Electrical Stimulation (IMES) using dry needling on pain and dysfunction following trigger points in upper trapezius muscle. **Methods:** This study is a randomized, double-blind, placebo-controlled clinical trial. 30 volunteers with active trigger points in upper trapezius randomly will be divided into two main groups including the IMES (15 female) and placebo (15 female). In the IMES group, trigger points on the affected side identify and will be injected through dry needling. Then, a burst current (2 Hz frequency, 200µs pulse width) apply through the needles while electrical current steadily increase to meet a pain free contraction. In placebo group, procedure is exactly similar but no electrical stimulation apply following Intramuscular Dry Needling (IDN). Pain sensation (by Visual Analog Scale=VAS), and Pain Pressure Threshold (PPT) (by algometer), range of motion (by goniometer) and disability (by Neck Disability Index=NDI) were measured before application and exactly after treatment and followed again one week later . All outcome measures assesse by another researcher do not have details about the groups. In this study, researcher that measure outcome measure do not know details about intervention in each groups. Patients are not informed about the intervention.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2017061634567N1**

Registration date: **2017-08-05, 1396/05/14**

Registration timing: **prospective**

Last update:

Update count: **0**

Registration date

2017-08-05, 1396/05/14

Registrant information

Name

monavar hadizdeh

Name of organization / entity

Shahid Beheshti University of Medical Sciences

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Investigator

Expected recruitment start date

2017-09-06, 1396/06/15

Expected recruitment end date

2017-11-06, 1396/08/15

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effects of Single Session Intramuscular Electrical Stimulation through Dry Needling on Pain and Dysfunction Following Trigger Points in Upper Trapezius Muscle

Public title

Effects of Intramuscular Electrical Stimulation on Upper Trapezius Trigger Points Treatment

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: 1. Active trigger points with specific bundle in upper trapezius muscle 2. The pain associated with the trigger point of the upper trapezius muscle be higher than 3 based on the VAS scale, which is considered as moderate pain. 3. Age 18-40 4. Do not give injections or other treatments for trigger points within a month before the study. 5. No history of muscle diseases such as fibromyalgia and myopathy. 6. No malignancy or patients susceptible to infection. 7. Not having central and peripheral neurological disorders. 8. Not having radical pain and history of neck surgery. 9. have no previous history of bad response to acupuncture or dry needling. 10. No pregnancy 11. Do not use anticoagulants. 12. No significant fears from the dry needling. 13. Not having vascular disease. 14. Not having diabetes. 15. Not having a history of migraine. exclusion criteria: 1. Withdrawal of cooperation by the patient. 2. Discomfort and intolerance method applied to the patient. 3. Incidence of abnormal reactions during dry needling and treatment.

Age

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

Gender

Female

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Double blinded

Blinding description

Placebo

Used

Assignment

Parallel

Other design features

In this study for randomization will be used balanced block randomization.

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee in Tehran University of Medical Sciences

Street address

Tehran, Keshavarz Blvd, Central building of Tehran University of Medical Sciences

City

tehran

Postal code

Approval date

2017-05-03, 1396/02/13

Ethics committee reference number

IR.TUMS.FNM.REC.1396.2216

Health conditions studied

1

Description of health condition studied

Trigger Points in Upper Trapezius Muscle

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

pain

Timepoint

before application, exactly after treatment and one week after treatment

Method of measurement

by visual analog scale

2

Description

Pain Pressure Threshold

Timepoint

before application, exactly after treatment and one week after treatment

Method of measurement

by algometer

3

Description

range of motion

Timepoint

before application, exactly after treatment and one week after treatment

Method of measurement

by goniometer

Secondary outcomes

1

Description

disability

Timepoint

before application and week after treatment

Method of measurement

by Neck Disability Index

Intervention groups

1

Description

Intervention group: The intervention in this group is intramuscular electrical stimulation. The patient is in prone, while the hands are placed next to the body and the head is in the midline. For a patient's comfort, a roll under the forehead is used. The muscle is needled with a pincer palpation. The needle is inserted perpendicular to the skin and directed towards the practitioner's finger. In the next step, the cathode electrode is connected to the needle and the other is placed by a circular electrode on the spinous process of seventh vertebra of neck. Then, a burst current (2 Hz frequency, 200µs pulse width) apply through the needles while electrical current steadily will be increased to meet a pain free contraction. The treatment is continued for a period of ten minutes.

control(placebo): In placebo group procedure is exactly the same but there is no electrical stimulation under dry needling. The treatment is continued for a period of ten minutes.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Physiotherapy Clinic of Tehran University of Medical Sciences

Full name of responsible person

Siamak Bashardoust Tajali

Street address

Faculty of Rehabilitation, piche shemiran st, Enghelab Ave, Tehran, Iran

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Tehran University of Medical Sciences

Full name of responsible person

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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

Tehran 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

Tehran University of Medical Sciences

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Position

master student

Other areas of specialty/work

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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