Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 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
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Name of organization / entity
Shahid Beheshti University of Medical Sciences
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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
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Sponsors / Funding sources

1

Sponsor
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Tehran University of Medical Sciences
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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

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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