Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Effect of Dry Needling Versus Shock Wave Therapy on Pain and Dysfunction Following Active Trigger Points in Upper Trapezius Muscle

Protocol summary

Study aim
The aim of this study was to compare the efficacy of two methods of Dry Needling and Shock Wave therapy on pain and dysfunction of active trigger points in the upper trapezius muscle

Design
Three arm parallel groups randomized clinical trial, single blinded, two-session treatment

Settings and conduct
48 patients with myofascial pain syndrome are admitted to the physiotherapy department of Nikan hospital after inclusion criteria. Using simple randomization, patients are divided into Shock wave, Shock wave Placebo and dry needling groups. All three groups receive two sessions of treatment per week.

Participants/Inclusion and exclusion criteria
Inclusion criteria: ages 18-35 years old; having trigger points active with a specified bundle in the upper trapezius muscle; pain above 3 and less than 7 on the VAS scale; pain one to three months; refferal pain. Exclusion criteria: performing injections or other treatments for trigger points during the research period; having a previous history of infectious diseases such as fibromyalgia and myopathy; malignancy or patients susceptible to infection; presence of central and peripheral neurological disorders; use of anticoagulants; having vascular diseases; fear of needling; skin ulcers in the treatment area.

Intervention groups
Shock wave Group: Upper Trapezius Muscle Shock Therapy is performed with 1000 impulses, 700 pulses on the Taut band of the Trapezius muscle and 300 pulses around the Taut band. Shock wave Group Placebo: In this group, the shock wave setting is as same as Shock wave Group without any impulse to the muscle. Dry needling Group: After inserting the needle into the muscle and observing the first twitch of the needle, leave it in the muscle for 5 minutes.

Main outcome variables
Pain; pain pressure threshold; disability based on NDI scale; lateral neck flexion range of motion

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20190514043588N1**
Registration date: **2019-12-29, 1398/10/08**
Registration timing: **retrospective**

Last update: **2019-12-29, 1398/10/08**
Update count: **0**

Registration date
2019-12-29, 1398/10/08

Registrant information

Name
Mehran Toghtamesh

Name of organization / entity
Medical University Tehran

Country
Iran (Islamic Republic of)

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+98 21 7757 0616

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2019-09-23, 1398/07/01

Expected recruitment end date
2019-11-22, 1398/09/01

Actual recruitment start date
empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of Dry Needling Versus Shock Wave Therapy on Pain and Dysfunction Following Active Trigger Points in Upper Trapezius Muscle

Public title

Comparison of the Effects of Needling and Shock Wave Therapy on Active Trigger Points

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Age 18-35 Having active trigger points with a distinct bundle in the upper trapezius muscle Touch the Taut Band on the upper trapezius muscle fibers Pain above 3 and less than 7 on the VAS scale Pain for one to three months Having refferal pain

Exclusion criteria:

Performing injections or other treatments for trigger points during the research period Having a previous history of infectious diseases such as fibromyalgia and myopathy Malignancy or patients susceptible to infection Presence of central and peripheral neurological disorders Use of anticoagulants Having vascular diseases Fear Of Needle Skin ulcers in the treatment area

Age

From **18 years** old to **35 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Participant

Sample size

Target sample size: **48**

Randomization (investigator's opinion)

Randomized

Randomization description

Patients were randomly divided into one of three groups under study using encoded pocket.

Blinding (investigator's opinion)

Single blinded

Blinding description

The participants are blind to the treatment.

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Tehran University of Medical Sciences

Street address

Faculty of Rehabilitation, Tehran University of Medical Sciences, Enghelab Ave, Tehran, Iran

City

Tehran

Province

Tehran

Postal code

1148965111

Approval date

2019-08-07, 1398/05/16

Ethics committee reference number

IR.TUMS.FNM.REC.1398.092

Health conditions studied

1

Description of health condition studied

Myofascial pain syndrome

ICD-10 code

M79.1

ICD-10 code description

Myalgia

Primary outcomes

1

Description

Pain

Timepoint

At baseline and immediately after the first session and after the second session

Method of measurement

Visual Analog Scale

2

Description

Pressure Pain Threshold

Timepoint

At baseline and immediately after the first session and after the second session

Method of measurement

Algometer

3

Description

Lateral bending Of Neck

Timepoint

At baseline and immediately after the first session and after the second session

Method of measurement

Goniometer

4

Description
Disability
Timepoint
Beginning and end of treatment
Method of measurement
Neck Disability Index Questionnaire

Secondary outcomes

empty

Intervention groups

1

Description
Dry Needling : In this group, needle enters the upper trapezius muscle trigger point and stays in the muscle for 5 minutes. Two treatment sessions with a 48 hour interval during a week.
Category
Treatment - Other

2

Description
Shock Wave Therapy: In this group, shockwave with a power of 38 mJ / mm2 and frequency of 10 Hz is applied to the upper trapezius muscle with 1000 impulses and two sessions of therapy with 48 h intervals during the week.
Category
Treatment - Other

3

Description
Placebo Shock Wave Therapy: In this group, a shockwave with a power of 38 mJ / mm2 and a frequency of 10 Hz is applied to the upper trapezius muscle without any impulse and two treatment sessions with 48 h intervals during the week.
Category
Placebo

Recruitment centers

1

Recruitment center
Name of recruitment center
Nikan Hospital
Full name of responsible person
Mehran Toghtamesh
Street address
Department of Physiotherapy, Nikan Hospital, 22 Bahman Ave., Army Boulevard
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Nikan hospital
Full name of responsible person
Dr. Mehdi Shiravi
Street address
Department of Physiotherapy, Nikan Hospital, 22 Bahman Ave., Army Boulevard
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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
Nikan hospital
Proportion provided by this source
100
Public or private sector
Private
Domestic or foreign origin
Domestic
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
Persons

Person responsible for general inquiries

Contact
Name of organization / entity
Tehran University of Medical Sciences
Full name of responsible person
Mehran Toghtamesh
Position
Masters student
Latest degree
Bachelor
Other areas of specialty/work
Physiotherapy
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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
Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary
Undecided - It is not yet known if there will be a plan to make this available