Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jul 2026

A Sonographic Comparison of Effect of Dry Needling and Ischemic Compression on Active Trigger Point of the Sternocleidomastoid Muscle associated with Cervicogenic Headache

Protocol summary

Study aim

The aim of this study was to compare the effects of dry needling and ischemic compression on the clinical symptoms of cervicogenic headache originating from active trigger point in the sternocleidomastoid muscle and the biomechanical properties of, using ultrasonography imaging.

Design

The randomized clinical trial, with the aim of treatment, parallel group

Settings and conduct

After signing the informed consent, a form was given to the subjects to record headache parameters over the following two weeks. Subjects were assessed and then randomly distributed in three groups: control, ischemic compression, or dry needlig. After intervention sessions, subjects were evaluated again. All study process was done at Tarbiat Modares University.

Participants/Inclusion and exclusion criteria

Subjects were eligible with cervicogenic headache from trigger point in the sternocleidomastoid muscle. They were excluded if they had other types of headaches, had active trigger point in the other muscles of the neck and face, needle phobia, rheumatologic diseases, neck or shoulder surgery, or had any contraindications for interventions.

Intervention groups

Subjects were supine and the trigger point was compressed between the physiotherapist’s thumb and index finger in the ischemic compression group. In the dry needling group, the trigger point was grasped between the physiotherapist’s fingers and a needle was repeatedly inserted in the anterior-posterior direction.

Main outcome variables

Headache intensity, Headache duration, Headache frequency

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20160621028567N1**
Registration date: **2019-02-10, 1397/11/21**
Registration timing: **retrospective**

Last update: **2019-02-10, 1397/11/21**
Update count: **0**

Registration date

2019-02-10, 1397/11/21

Registrant information

Name

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 21 8288 3559

Email address

m.jafarii@modares.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-08-23, 1397/06/01

Expected recruitment end date

2019-03-21, 1398/01/01

Actual recruitment start date

2018-09-01, 1397/06/10

Actual recruitment end date

2018-12-30, 1397/10/09

Trial completion date

2018-12-31, 1397/10/10

Scientific title
A Sonographic Comparison of Effect of Dry Needling and Ischemic Compression on Active Trigger Point of the Sternocleidomastoid Muscle associated with Cervicogenic Headache

Public title
The comparison of effect of dry needling and ischemic compression for cervicogenic headache

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Cervicogenic headache Active trigger point in the sternocleidomastoid muscle inducing headache

Exclusion criteria:
Other types of headache Active trigger points in the other muscles of neck and face Needle phobia Rheumatological diseases Neck and shoulder surgery Any contraindications for interventions

Age
No age limit

Gender
Female

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **30**
Actual sample size reached: **29**

Randomization (investigator's opinion)
Randomized

Randomization description
By simple randomization method, subjects were assigned to ischemic compression group(n=9), dry needling group (n=10), or control group (n=10). The sealed envelope was used for randomized allocation of subjects to the groups. In this way, subjects selected one of 29 similar sealed envelopes. Inside the envelopes were the name of one of the three groups that led to the assignment of the subjects to that group.

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Committee of Ethics in Biomedical Research, Tarbiat Modares University

Street address
Jala Ale Ahmad, Nasr

City
Tehran

Province
Tehran

Postal code
1411713116

Approval date
2015-12-22, 1394/10/01

Ethics committee reference number
IR.TMU.REC.1394.163

Health conditions studied

1

Description of health condition studied
Cervicogenic headache

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description
Headache intensity

Timepoint
At the beginning of the study, two weeks after end of interventions

Method of measurement
Designed form for recording the clinical characteristics of headache

2

Description
Headache duration

Timepoint
At the beginning of the study, two weeks after end of interventions

Method of measurement
Designed form for recording the clinical characteristics of headache

3

Description
Headache frequency

Timepoint
At the beginning of the study, two weeks after end of interventions

Method of measurement
Designed form for recording the clinical characteristics of headache

Secondary outcomes

1

Description
Elastic modulus
Timepoint
At the beginning of the study, two weeks after end of intervention
Method of measurement
Ultrasound

2

Description
Trigger point area
Timepoint
At the beginning of the study, two weeks after end of intervention
Method of measurement
Ultrasound

3

Description
Pressure pain threshold
Timepoint
At the beginning of the study, two weeks after end of intervention
Method of measurement
Force gauge

Intervention groups

1

Description
Intervention group: ischemic compression. Subjects in the ischemic compression group were asked to lie in a supine position with their heads in contralateral rotation, the trigger point taut band was grasped between the clinician's thumb and index finger and for 30-60 seconds maximal tolerable pressure was applied. This process was repeated three times with 30-second intervals. If the headache pattern was reproduced or the pain disappeared, ischemic compression was discontinued. The intervention was repeated 4 sessions within 8 days with one-day intervals between each treatment session.
Category
Rehabilitation

2

Description
Intervention group: dry needling. For the dry needling group, subjects were supine with neutral head, the trigger point was grasped between the clinician's thumb, index, and middle fingers and a 0.25×40mm needle (DongBang Acuprime) was repeatedly inserted in the anterior-posterior direction as long as local twitch responses were extinct. The intervention was repeated 4 sessions within 8 days with one-day intervals between each treatment session.
Category
Rehabilitation

3

Description
Control group: no intervention. Subjects in the control group did not receive any treatments.
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Dr Togha Headache Clinic
Full name of responsible person
Mansoureh Togha
Street address
Iranema Physician Building, 24th Ave, Ghaem Magham Ave, Haft-e Tir Square
City
Tehran
Province
Tehran
Postal code
1586984447
Phone
+98 21 8832 8351
Email
toghae@sina.tums.ac.ir

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Tarbiat Modares University
Full name of responsible person
Mohammad Taghi Ahmadi
Street address
Jala Ale Ahmad, Nasr
City
Tehran
Province
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Postal code
1411713116
Phone
+98 21 8288 2005
Email
mahmadi@modares.ac.ir
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Tarbiat Modares University
Proportion provided by this source
50
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

Tarbiat Modares University

Full name of responsible person

Farid Bahrpeyma

Position

Associate Professor

Latest degree

Ph.D.

Other areas of specialty/work

Physiotherapy

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Person responsible for scientific inquiries

Contact

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Full name of responsible person

Farid Bahrpeyma

Position

Associate Professor

Latest degree

Ph.D.

Other areas of specialty/work

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Person responsible for updating data

Contact

Name of organization / entity

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Full name of responsible person

Mehdi Jafari

Position

PhD Candidate

Latest degree

Master

Other areas of specialty/work

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Email

m.jafarii@modares.ac.ir

Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is a plan to make this available

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Yes - There is a plan to make this available

Data Dictionary

Yes - There is a plan to make this available

Title and more details about the data/document

part of data

When the data will become available and for how long

6 months after publication

To whom data/document is available

Researchers

Under which criteria data/document could be used

for treatment and research goals

From where data/document is obtainable

Dr Farid Bahrpeyma bahrpeyf@modares.ac.ir

What processes are involved for a request to access data/document

Confirmation of advisor professor

Comments