

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

Comparison of neurodynamic technique and the air compression massage therapy on sensory and motor parameters of median nerve in patients with mild to moderate carpal tunnel syndrome

Protocol summary

Study aim

Determination of effect of neurodynamic technique and the air compression massage therapy on sensory and motor parameters of median nerve in patients with mild to moderate carpal tunnel syndrome

Design

A randomized not blinded clinical trial with a parallel groups, on 30 patients

Settings and conduct

Patients who will be referred to rehabilitation unit of Razi Hospital in Birjand by inclusion criteria. First, Boston questionnaire will be completed by patients to evaluate subjective symptoms. Then, the initial evaluation of sensory and motor parameters of the Median nerve will be performed by a skilled neurologist by NEMUS 2EBM. Then, patients will be randomly divided into two groups of routine therapy group (tens, ultrasound, neurodynamic techniques) and air pressure massage therapy group (tens, ultrasound, pressure device model WIC2008). At the end of the treatment, the evaluation will be performed again by NEMUS 2EBM and the Boston questionnaire will be completed again by the patient.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Years: Range: 18-60, males and females
Sensory peak latency more than 3.5 msec
Persons with parasthesia, pain in distribution of median nerve
People with a desire to enter the study
Exclusion criteria: Thenar atrophy
Systemic peripheral neuropathy
History of carpal tunnel release
Metabolic and vascular disorders
Pregnancy
Previous history of injection steroid
carpal tunnel
Previous history of trauma in carpal tunnel region

Intervention groups

group A: Neurodynamic technique group B: Air compression massage

Main outcome variables

Motor latency, Sensory peak latency, Sensory velocity, subjective symptoms (pain and function)

General information

Reason for update

Acronym

سندروم تونل کارپال cts

IRCT registration information

IRCT registration number: **IRCT20180714040466N4**

Registration date: **2021-10-23, 1400/08/01**

Registration timing: **retrospective**

Last update: **2021-10-23, 1400/08/01**

Update count: **0**

Registration date

2021-10-23, 1400/08/01

Registrant information

Name

Fateme Ghiasi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

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Email address

f_ghiasi_p@zaums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-06-22, 1400/04/01

Expected recruitment end date

2021-09-11, 1400/06/20

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of neurodynamic technique and the air compression massage therapy on sensory and motor parameters of median nerve in patients with mild to moderate carpal tunnel syndrome

Public title

Comparison of neurodynamic technique and the air compression massage therapy on parameters of median nerve in patients with carpal tunnel syndrome

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Years: Range:18-60, males and females Sensory peak latency more than 3.5 msec Persons with parasthesia in distribution of median nerve Persons with pain in distribution of median nerve People with a desire to enter the study

Exclusion criteria:

Thenar atrophy Systemic peripheral neuropathy History of carpal tunnel release Metabolic disorders Vascular disorders Previous history of trauma in carpal tunnel region Previous history of injection steroid in carpal tunnel Pregnancy

Age

From **18 years** old to **60 years** old

Gender

Both

Phase

3

Groups that have been masked

No information

Sample size

Target sample size: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

Based on the number of patients in each group, the particular sort of treatment (Neurodynamic Techniques group or Air compression massage group) is written on a piece of paper. Each paper is placed in a sealed envelope. One envelope will be chosen randomly by the therapist at the first session of the patient treatment and the patient's treatment technique is selected based on that. If any of the patients is omitted from the study, one envelope related to the excluded patient treatment group will be replaced and they will mixed again.

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Single

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Zahedan University of Medical Sciences

Street address

Dr. Hesabi Blvd

City

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Province

Sistan-va-Balouchestan

Postal code

9816743463

Approval date

2021-07-17, 1400/04/26

Ethics committee reference number

IR.ZAUMS.REC.1400.123

Health conditions studied

1

Description of health condition studied

Carpal Tunnel Syndrome

ICD-10 code

G56.0

ICD-10 code description

Carpal tunnel syndrome

Primary outcomes

1

Description

Symptom of carpal tunnel syndrome

Timepoint

Before and after treatment

Method of measurement

Bostone examiner

2

Description

Sensory and motor parameters of median nerve

Timepoint

Before and after of treatment

Method of measurement

Electrodyagnostic

Secondary outcomes

empty

Intervention groups

1

Description

Control group: Neurodynamic technique. ULTT2a

neurodynamic technique will be performed for 3 weeks. ULTT2a steps include: (1) shoulder girdle depression (2) shoulder abduction (3) external shoulder rotation and forearm supination (4) finger and wrist extension (5) elbow extension . The technique is in 5 separate sets and each set contains 10 repetitions that will be done every other day.

Category

Rehabilitation

2**Description**

Intervention group: Air compression massage. In this group, the WIC2008 compression device will be used for treatment. While the person is sitting, the person's arm will be fully supported on the armrest in a completely relaxed position, the affected limb will be completely inside the device pad, adjusted alternately with a maximum pressure of 120 mm Hg and a minimum pressure of 0 mm Hg. The filling time of the device is 3 seconds and its discharge time is 12 seconds and the treatment lasts for ten minutes. The treatment will be done for three weeks and one day in between.

Category

Rehabilitation

Recruitment centers**1****Recruitment center****Name of recruitment center**

Razi hospital

Full name of responsible person

Samane Khorashadizade

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Sponsors / Funding sources**1****Sponsor****Name of organization / entity**

Zahedan 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

Zahedan 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**

Zahedan University of Medical Sciences

Full name of responsible person

Dr.Fateme Ghiasi

Position

Asistance professor

Latest degree

Ph.D.

Other areas of specialty/work

Physiotherapy

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Person responsible for scientific inquiries**Contact****Name of organization / entity**

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Full name of responsible person

Dr.Fateme Ghiasi

Position

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Person responsible for updating data

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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