Clinical Trial Protocol
Iranian Registry of Clinical Trials

18 Sep 2026

The comparative evaluation of the effects of TECAR therapy and conventional physical therapy treatments on pain and function in people with Carpal tunnel syndrome

Protocol summary

Study aim

average pain score, hand function index and grip strength in people with carpal tunnel syndrome before and after treatment in both groups

Design

simple, non-random, continuous and goal-based. random blocks (4 blocks of 11 numbers) will be used. Half of the total sample are randomly selected (through the table of random numbers) and are considered as the first group, and the remaining numbers are included in the second group.

Settings and conduct

This study is a randomized clinical trial in a three-way blind method .For this reason, it is considered triple blind that the evaluator, the statistical consultant and the participants are unaware of the type of treatment and treatment groups. This research is conducted in Dr. Taheri's physiotherapy clinic.

Participants/Inclusion and exclusion criteria

Entry requirements:- Carpal tunnel syndrome moderate to severe symptoms - 25-65 years- Burning pain with tingling and numbness in the terminal path of the median nerve - Period of symptoms more than three months Exit conditions: Metabolic and systemic- Polyneuropathy- Corticosteroid injection in the studied hand during the last three months- History of trauma to the involved hand during the last 12 months- Previous surgery related to carpal tunnel syndrome in the involved hand- Heart pacemaker- Severe neurological disease- Pregnancy during the study period- Deformity in the wrist and hand

Intervention groups

both groups will be treated with conventional physiotherapy along with placebo therapy for 10 sessions during 4 weeks (each week includes 3 treatment sessions) . For the second group, in addition to the usual physiotherapy treatment, 5 sessions of TECAR therapy (one session in between) will also be done

Main outcome variables

Pain Symptom severity and hand function Hand strength

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230724058902N1**
Registration date: **2023-07-29, 1402/05/07**
Registration timing: **prospective**

Last update: **2023-07-29, 1402/05/07**
Update count: **0**

Registration date

2023-07-29, 1402/05/07

Registrant information

Name

Elham Tahmasebi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 913 323 9613

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-07-31, 1402/05/09

Expected recruitment end date

2023-12-30, 1402/10/09

Actual recruitment start date

empty

Actual recruitment end date
empty
Trial completion date
empty

Scientific title
The comparative evaluation of the effects of TECAR therapy and conventional physical therapy treatments on pain and function in people with Carpal tunnel syndrome

Public title
The comparative evaluation of the effects of TECAR therapy and conventional physical therapy treatments on pain and function in people with Carpal tunnel syndrome
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Moderate to severe carpal tunnel syndrome based on electrodiagnostic findings 25-65 years old people Tingling pain with pins and needle sensation and numbness in thumb, index, middle and radial half of ring finger Presence of symptoms more than 3 months
Exclusion criteria:
Metabolic and systemic disorder: hypothyroidism, diabetes, rheumatoid arthritis Polyneuropathy Corticosteroid injection in the subject hand in the past 3 months Trauma history to the subject hand in past 12 months Past carpal tunnel syndrome surgery history in the affected hand Pace maker Severe neurologic disorder Pregnancy in study process Deformity in wrist or hand
Age
From **25 years** old to **65 years** old
Gender
Both

Phase
N/A
Groups that have been masked

- Participant
- Investigator
- Outcome assessor
- Data analyser
- Data and Safety Monitoring Board

Sample size
Target sample size: **44**
Randomization (investigator's opinion)
Randomized
Randomization description
This study is a randomized clinical trial in a three-way blind method. The sampling method of this research project is simple, non-random, continuous and goal-based, but the grouping of participants is done in random blocks (4 blocks of 11 numbers). Half of the total sample numbers are randomly selected (through the table of random numbers) and are considered as the first group, and the remaining numbers are included in the second group.
Blinding (investigator's opinion)
Triple blinded
Blinding description
The study is considered triple-blind because the evaluator, statistical consultant, and participants are unaware of the type of treatment and treatment groups.
Placebo
Used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics committee of Isfahan University of Medical Sciences
Street address
East namdaran
City
Fooladshahr
Province
Isfehan
Postal code
8491787543
Approval date
2023-07-24, 1402/05/02
Ethics committee reference number
IR.MUI.NUREMA.REC.1402.058

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
pain
Timepoint
Beginning, after 10 sessions and 4 weeks later
Method of measurement
NPRS

2

Description
Function
Timepoint
Beginning, after 10 sessions and 4 weeks later
Method of measurement

Boston questionnaire

3

Description
Hand grip strength
Timepoint
Beginning, after 10 sessions and 4 weeks later
Method of measurement
Dynamometer

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: 10 sessions routine physiotherapy - 5 minutes of non-continuous ultrasound (1:4) (manufactured by Novin Medical Engineering Company, model 215M) with a frequency of 1 MHz and an intensity of 21 W/cm on the palmar surface of the wrist / 5 minutes of non-continuous ultrasound (1:4) (manufactured by the company Novin Medical Engineering Model 215M) with a frequency of 1 MHz and an intensity of W/cm21 on the palmar surface of the wrist / - 5 minutes of non-continuous ultrasound (1:4) (manufactured by Novin Medical Engineering Company, model 215M) with a frequency of 1 MHz and an intensity of W/cm21 on the surface Palmar wrist/ therapy exercise program/ along with 5 sessions of TECAR therapy, each session will be 10 minutes (5 minutes of capacitance and 5 minutes of resistance) with a frequency of 500 KHz.
Category
Treatment - Devices

2

Description
Control group: 10 sessions routine physiotherapy - 5 minutes of non-continuous ultrasound (1:4) (manufactured by Novin Medical Engineering Company, model 215M) with a frequency of 1 MHz and an intensity of 21 W/cm on the palmar surface of the wrist / 5 minutes of non-continuous ultrasound (1:4) (manufactured by the company Novin Medical Engineering Model 215M) with a frequency of 1 MHz and an intensity of W/cm21 on the palmar surface of the wrist / - 5 minutes of non-continuous ultrasound (1:4) (manufactured by Novin Medical Engineering Company, model 215M) with a frequency of 1 MHz and an intensity of W/cm21 on the surface Palmar wrist/ therapy exercise program/ along with 5 sessions of placebo TECAR therapy
Category
Treatment - Devices

Recruitment centers

1

Recruitment center
Name of recruitment center
Dr. Navid Taheri Physiotherapy Clinic
Full name of responsible person
Dr. Navid Taheri
Street address
Mohtasham kashani street
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Esfahan University of Medical Sciences
Full name of responsible person
Dr. Qolamreza Asgari
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Hezar jarib
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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
Esfahan 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
Esfahan University of Medical Sciences
Full name of responsible person
Navid Taheri
Position
Associate professor
Latest degree
Ph.D.
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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
Not applicable
Data Dictionary
Not applicable