

Clinical Trial Protocol

Iranian Registry of Clinical Trials

09 Jun 2026

The survey of the effects of Manual and Electro- Acupuncture on the clinical manifestations and cytokines of immune system in patients with knee osteoarthritis and comparing it with sham acupuncture

Protocol summary

Study aim

Investigating the effect of manual and electrical acupuncture on clinical manifestations and quality of life, as well as immune system cytokines (IL4-IL10-TNF α -TGF β -IFN γ) of patients with knee osteoarthritis

Design

Clinical trial with a control group, with parallel groups, double-blind, randomized, on 45 patients. For randomization, the table of random numbers from the Research randomizer site is used.

Settings and conduct

This study is conducted in the Rheumatology and Acupuncture Clinics of Imam Reza Hospital in Mashhad. After the introduction of the patients by the Rheumatologist and if they are eligible to enter and do not have the exclusion criteria, the patients are randomly divided into three groups. Allocation to groups will be through sealed envelopes and the persons for evaluations and analysts will be blind. The intervention will be conducted and the results will be extracted and analyzed.

Participants/Inclusion and exclusion criteria

Entry criteria: people diagnosed with osteoarthritis by a rheumatologist; aged 45 to 65 years old; educated and having a pain score of 4 or higher on the VAS scale.

Exclusion criteria: people who have knee surgery or arthroscopy or intra-knee injection or disease affecting the immune system; pacemaker; pregnancy; coagulation disorder; mental and cognitive disorders; high weight; joint effusion or severe fear of needles.

Intervention groups

1) manual acupuncture group; 2) electrical acupuncture group; 3) sham acupuncture group

Main outcome variables

Primary outcome: pain; inflammatory factors

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20170305032893N3**

Registration date: **2023-05-02, 1402/02/12**

Registration timing: **registered_while_recruiting**

Last update: **2023-05-02, 1402/02/12**

Update count: **0**

Registration date

2023-05-02, 1402/02/12

Registrant information

Name

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 0915

Email address

khorsanda@mums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-04-09, 1402/01/20

Expected recruitment end date

2023-07-22, 1402/04/31

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The survey of the effects of Manual and Electro-Acupuncture on the clinical manifestations and cytokines of immune system in patients with knee osteoarthritis and comparing it with sham acupuncture

Public title

Effectiveness of acupuncture in osteoarthritis

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

Patients diagnosed with knee OA based on ACR criteria (ACR=American college of Rheumatology)(OA=Osteoarthritis) Age should be between 45 and 65 years old Only one knee is involved Have a VAS pain score of four or more than four.(VAS=visual Analogue scale) Be literate (writing and reading ability)

Exclusion criteria:

The surgery has been detailed or is in the process of surgery Knee arthroscopy has been done during the last year Have an intra-articular injection during the last six months Any disease that disrupts the functioning of the immune system, such as inflammatory diseases, autoimmune diseases, connective tissue diseases, diabetes, cancer, etc. Severe physical or cognitive illness of the participant that prevents the continuation of cooperation Have a pacemaker Pregnancy and breastfeeding Have done acupuncture during the last six months Coagulation disorders and the use of anticoagulants Participation of the candidate in other clinical studies currently or during the last three months Getting infected with covid during the study or ... in the last month or other infectious diseases during the struggle . BMI more than 30 (BMI =body mass index) Any forced changes in treatment regimen Non-cooperation in applying intervention for more than two sessions If the joint has liquid effusion (joint effusion) Life-threatening medical and clinical events Extreme fear of needles(Belonephebria)

Age

From **45 years** old to **65 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Participant
- Outcome assessor
- Data analyser

Sample size

Target sample size: **45**

Randomization (investigator's opinion)

Randomized

Randomization description

Online version of the list of random numbers through Research randomizer

Blinding (investigator's opinion)

Triple blinded

Blinding description

Except for the acupuncturist, everyone, including the

patients and health personnel, and the outcome assessor and data analyzer, are all blind .First, the randomizer numbers site is asked to divide and present 45 random numbers in three groups A, B and C. Group A is the manual intervention group, and group B is the electrical intervention group, and group C is the sham acupuncture group, and only the acupuncturist intervener is aware of this division .The numbers are placed in sealed envelopes, and after being accepted into the study, the patients refer to the allocator person and take an envelope and refer to the acupuncturist, and after registering the envelope and patient's details, the intervention is performed.

Placebo

Used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Ethics Committee of Mashhad University of Medical Sciences

Street address

Qureshi Building, University Street, Mashhad Khorasan razavi

City

Mashhad

Province

Razavi Khorasan

Postal code

9177899191

Approval date

2023-01-30, 1401/11/10

Ethics committee reference number

IR.MUMS.REC.1401.371

Health conditions studied**1****Description of health condition studied**

Knee Osteoarthritis

ICD-10 code

M17

ICD-10 code description

Osteoarthritis of knee

Primary outcomes**1****Description**

Primary outcome 1) changes in the level of pain based

on the VAS scale before the intervention and weeks 8, 12, and 16.--- . 2) Measuring the amount of inflammatory factors: including IFN- γ (gama interferon)secreted by T-helper1 cells, IL-4 (interleukin-4) secreted by T-helper-2 cells. -- and TGF- β (transforming growth factor beta) and IL10 (interleukin 10)secreted by regulatory T cells (T REG CELLS), and TNF α (tumor necrosis factor alpha)secreted by M1 macrophages before and after treatment at the end of weeks 8 .

Timepoint

0-8-12-16 weeks

Method of measurement

Based on numerical scale of vas and based on laboratory numerical values

Secondary outcomes

1

Description

Changes in the level of physical activity

Timepoint

Before intervention and weeks 8, 12 and 16

Method of measurement

WOMAC Scale(Western Ontario McMaster Universities Osteoarthritis Index)

2

Description

Changes in morning stiffness

Timepoint

Before intervention and weeks 8, 12 and 16

Method of measurement

WOMAC Scale

3

Description

Changes in quality of life

Timepoint

Before intervention and weeks 8, 12 and 16

Method of measurement

Based on the quality of life form (QoL)

Intervention groups

1

Description

Intervention group 1: manual acupuncture group. In this group, acupuncture needles of specific size are used in predetermined and identical points and are stimulated by hand every ten minutes.

Category

Treatment - Devices

2

Description

Control group: Sham acupuncture is performed in the control group, which is actually false. Special Streitberger

needles are used, which are placed on the skin. There is a tingling sensation, but the needle does not enter the skin, and the points are the same as in the intervention group.

Category

Treatment - Devices

3

Description

The intervention group 2: In this group, electro-acupuncture is used. The points and needles are the same as the previous group, only the stimulation is done through an electro-acupuncture device with specific voltage and current intensity.

Category

Treatment - Devices

Recruitment centers

1

Recruitment center**Name of recruitment center**

Rheumatic Diseases Clinic, Imam Reza Hospital, Mashhad

Full name of responsible person

Dr. Kamila Hashemzadeh

Street address

Imam Reza Square, Rheumatic Disease Clinic, Imam Reza Hospital, Mashhad

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Email

HashemzadehK@mums.ac.ir

Sponsors / Funding sources

1

Sponsor**Name of organization / entity**

Mashhad University of Medical Sciences

Full name of responsible person

Dr. Majid Ghayour Mobrahan

Street address

Vice Chancellor of Research and Technology of the University of medical science . next to Howaize cinema.University of medical science of Mashhad. University .st

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ghayourm@mums.ac.ir

Grant name**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

Title of funding source

Mashhad University of Medical Sciences

Proportion provided by this source

1

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**

Mashhad University of Medical Sciences

Full name of responsible person

Ahmad Hamzeh

Position

phd student

Latest degree

Medical doctor

Other areas of specialty/work

Traditional Medicine

Street address

The east door of the Ferdowsi university - second floor of Faculty of Medicine -- Faculty of Iranian and complementary Medicin

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

Mashhad University of Medical Sciences

Full name of responsible person

Dr. Ali Khorsand vakilzadeh

Position

Associate professo

Latest degree

Ph.D.

Other areas of specialty/work

Traditional Medicine

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Person responsible for updating data**Contact****Name of organization / entity**

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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

Study specific information

When the data will become available and for how long

After completing the study and publication of results

To whom data/document is available

Project supervisors and persons who have permission from the University Research Council

Under which criteria data/document could be used

Project supervisors and persons who have permission

from the University Research Council

From where data/document is obtainable

University Research Council

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

Obtaining the opinion of the research council of the university and obtaining the favorable opinion of the researcher

Comments