Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Comparison of the effectiveness of Amygdalus communis var. amara oil with placebo, diclofenac and massage in improving joint pain and stiffness and physical function in knee osteoarthritis patients

Protocol summary

Study aim

Comparison of the effectiveness of Amygdalus communis var. amara oil with placebo, diclofenac and massage in the treatment of knee osteoarthritis patients

Design

Randomized; block randomization with computer generated random numbers table and sequentially numbered containers each representing a block consisting of four patients are used for the treatment assignments. Double-blind; controlled with placebo, diclofenac and massage; four group parallel design; single-center; phase 2 of clinical trial. Study population: patients with knee osteoarthritis. Sample size: 200 patients.

Settings and conduct

The trial setting: Mashhad Emam Reza Hospital. Protocol: 50 patients apply topical bitter almond oil, 50 patients apply topical placebo and 50 patients apply topical diclofenac to the knee every 8 hours for 10 minutes during 1 month and 50 patients only massage the knee without any topical agent application every 8 hours for 10 minutes during 1 month. Before intervention and 1 month after intervention the groups' extent of arthritis, extent of joint pain, extent of joint stiffness and extent of physical function are compared with each other. Blinding: Three different persons generate the random allocation sequence, enroll the participants and assign them to intervention groups. These persons, care providers, outcome assessors, data analyzer, investigators and participants are blinded to assignment to the bitter almond oil, diclofenac and placebo groups. Participants and care providers are not blinded to assignment to the massage group. But, all others are blinded to assignment to the massage group.

Participants/Inclusion and exclusion criteria

Inclusion criteria: male or female patients with 1 or 2 knees osteoarthritis according to the American College of Rheumatology criteria after physical examination and knee joint radiography; age of 40 to 85 years; flare of the disease after oral non-steroidal anti-inflammatory drug or acetaminophen discontinuation which have been used at least 3 days a week during the past month (flare means increase of at least 2 scores in the total pain subscale score in the beginning of the study); Western Ontario and McMaster Universities (WOMAC) pain subscale index at least 9 out of 20 in the beginning of the study. Exclusion criteria: secondary osteoarthritis (due to a definite disease); arthroscopy; surgery; history of knee replacement surgery; any serious systemic disease (such as concomitant infections, cardiovascular, hepatic and renal diseases); any other chronic inflammatory disease; any history of alcohol, drug and narcotics abuse; skin disease in the knee area; having fibromyalgia and other debilitating diseases affecting the knee; pregnant women; women planning pregnancy; lactating women.

Intervention groups

50 patients apply topical bitter almond oil, 50 patients apply topical placebo and 50 patients apply topical diclofenac to the knee every 8 hours for 10 minutes during 1 month and 50 patients only massage the knee without any topical agent application every 8 hours for 10 minutes during 1 month.

Main outcome variables

Primary outcome variable: extent of arthritis. Secondary outcome variables: extent of joint pain, extent of joint stiffness, extent of physical function.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20170821035817N1**
Registration date: **2017-12-17, 1396/09/26**
Registration timing: **prospective**

Last update: **2017-12-17, 1396/09/26**
Update count: **0**

Registration date
2017-12-17, 1396/09/26

Registrant information

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Maryam Yaghoubi

Name of organization / entity

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Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source
Vice Chancellor for Research, Mashhad University of Medical Sciences; Vice Chancellor for Research, ACECR Institute of Medicinal Plants

Expected recruitment start date
2018-04-21, 1397/02/01

Expected recruitment end date
2019-04-21, 1398/02/01

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Comparison of the effectiveness of Amygdalus communis var. amara oil with placebo, diclofenac and massage in improving joint pain and stiffness and physical function in knee osteoarthritis patients

Public title
Effect of bitter almond oil in treatment of knee arthrosis

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Male or female patients with 1 or 2 knees osteoarthritis according to the American College of Rheumatology criteria after physical examination and knee joint radiography Age of 40 to 85 years Flare of the disease after oral non-steroidal anti-inflammatory drug or acetaminophen discontinuation which have been used at least 3 days a week during the past month (flare means increase of at least 2 scores in the total pain subscale score in the beginning of the study.) Western Ontario and McMaster Universities (WOMAC) pain subscale index at least 9 out of 20 in the beginning of the study

Exclusion criteria:
Secondary osteoarthritis (due to a definite disease) Arthroscopy Knee surgery History of knee replacement surgery Infection Cardiovascular disease Hepatic disease Renal disease Other chronic inflammatory disease History of alcohol abuse History of drug abuse History of narcotic abuse Skin disease in the knee area Fibromyalgia Debilitating disease affecting the knee Pregnant women Women planning pregnancy Lactating women

Age
From **40 years** old to **85 years** old

Gender
Both

Phase
3

Groups that have been masked

- Participant
- Care provider
- Investigator
- Outcome assessor
- Data analyser

Sample size
Target sample size: **200**

Randomization (investigator's opinion)
Randomized

Randomization description
Block randomization with computer generated random numbers table and sequentially numbered containers each representing a block consisting of four patients are used for the treatment assignments.

Blinding (investigator's opinion)
Double blinded

Blinding description
Three different persons generate the random allocation sequence, enroll the participants and assign them to intervention groups. These persons, care providers, outcome assessors, data analyzer, investigators and participants are blinded to assignment to the bitter almond oil, diclofenac and placebo groups. Participants and care providers are not blinded to assignment to the massage group. But, all others are blinded to assignment to the massage group.

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
Building of Mashhad University of Medical Sciences, Shahid Fakuri Boulevard, Danesh Salamat Town

City
Mashhad

Province
Razavi Khorasan
Postal code
99191-91778
Approval date
2017-07-15, 1396/04/24
Ethics committee reference number
IR.MUMS.REC.1396.142

Health conditions studied

1

Description of health condition studied
Osteoarthritis
ICD-10 code
M19.9
ICD-10 code description
Arthrosis, unspecified

Primary outcomes

1

Description
Extent of arthritis
Timepoint
Before intervention and 1 month after intervention
Method of measurement
The Western Ontario and McMaster Universities Arthritis Index questionnaire

Secondary outcomes

1

Description
Extent of joint stiffness
Timepoint
Before intervention and 1 month after intervention
Method of measurement
The Western Ontario and McMaster Universities Arthritis Index questionnaire

2

Description
Extent of joint pain
Timepoint
Before intervention and 1 month after intervention
Method of measurement
The Western Ontario and McMaster Universities Arthritis Index questionnaire

3

Description
Extent of physical function
Timepoint
Before intervention and 1 month after intervention
Method of measurement
The Western Ontario and McMaster Universities Arthritis Index questionnaire

Intervention groups

1

Description
Fifty patients apply topical bitter almond oil to the knee every 8 hours for 10 minutes during 1 month
Category
Treatment - Drugs

2

Description
Fifty patients apply topical diclofenac to the knee every 8 hours for 10 minutes during 1 month
Category
Treatment - Drugs

3

Description
Fifty patients massage the knee without application of any topical agent every 8 hours for 10 minutes during 1 month
Category
Treatment - Other

4

Description
Fifty patients apply topical placebo to the knee every 8 hours for 10 minutes during 1 month
Category
Placebo

Recruitment centers

1

Recruitment center
Name of recruitment center
Emam Reza hospital
Full name of responsible person
Ali Khorsand Vakilzadeh
Street address
Emam Reza hospital, Daneshgah Street
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Mashhad 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
Mashhad University of Medical Sciences
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

2

Sponsor
Name of organization / entity
Iranian academic center for education culture and research
Full name of responsible person
Dr. Reza Hajiaghaee
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ACECR Complex, Supa Boulevard, Poleh Kordan
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Web page address
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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
Iranian academic center for education culture and research
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
ACECR Institute of Medicinal Plants
Full name of responsible person
Dr. Saeed Kianbakht
Position
Assistant professor
Latest degree
Ph.D.
Other areas of specialty/work
Pharmacology
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Institute of Medicinal Plants, ACECR Complex, Supa Boulevard, Poleh Kordan
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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
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Assistant professor
Latest degree
Specialist
Other areas of specialty/work
Traditional Medicine
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Person responsible for updating data

Contact
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Full name of responsible person
Dr. Maryam Yaghoubi
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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
No - There is not a plan to make this available
Clinical Study Report
Yes - There is a plan to make this available
Analytic Code
No - There is not a plan to make this available
Data Dictionary
No - There is not a plan to make this available
Title and more details about the data/document
All collected deidentified IPD are to be shared.
When the data will become available and for how long
Access period starting 6 months after publication for 1 year
To whom data/document is available
Researchers working in university and scientific and industrial institutes
Under which criteria data/document could be used
Only statistical analyses mentioned in the article resulting from the study for personal knowledge are permitted. Written request for access to data and documents and its aim must be certified by the highest ranking official of the work place of the requester.
From where data/document is obtainable
Dr. Saeed Kianbakht with the address ACECR Institute of Medicinal plants, P.O. Box: 31375-369, Iran
What processes are involved for a request to access data/document
Written request should be sent to the address Dr. Saeed Kianbakht, ACECR Institute of Medicinal Plants, P.O. Box: 31375-369, Iran. The documents or data file will be sent to the requester by email.
Comments