Clinical Trial Protocol
Iranian Registry of Clinical Trials

24 Aug 2026

Effect of Ellagic acid supplementation on disease severity, expression of involved genes in pathogenesis, and levels of immunity and inflammatory biomarkers in patients with Multiple Sclerosis

Protocol summary

Study aim

Determination of the ellagic acid supplementation effects in comparison to placebo on disease severity, IL-17, IL-4, IFNγ and TGF-β cytokines and expression of Tbet, GATA3, RORγt and FOXP3 genes in patients with MS

Design

Clinical trial with control group, with parallel groups, double blind, randomized, phase 3 on 46 patients. The balanced block method will be used for randomization.

Settings and conduct

Among the patients referred to Firoozgar Hospital MS Clinic, patients who meet the study inclusion criteria, are randomly assigned to one of the two groups receiving ellagic acid supplement and placebo. None of the patients, as well as the researcher, will know the group in which the patients are and the type of intervention received.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Patient informed consent, disease diagnosis based on McDonald's criteria and MRI by a neurologist, EDSS score less than 5.5, relapsing-remitting status of the disease, age between 18 and 55 years. Exclusion criteria: Reluctance to participate in the study, take nutritional supplements, antioxidants, and ellagic acid during a month before the start of the study and during the study, taking nonsteroidal anti-inflammatory drugs, estrogen, progesterone, immunosuppressives, diuretics, and corticosteroids during a month before the study, patients with inflammatory and autoimmune diseases are excluded from the study, pregnancy and lactation, drug abuse.

Intervention groups

Group A (ellagic acid): daily consumption of two 90 mg capsules made by Exir Gostar Company for 12 weeks. Group B (placebo): A placebo similar to the above cellulose capsules prepared by Exir Gostar Company for 12 weeks.

Main outcome variables

Serum levels of IL4, IL17, IFNγ, TGF-β and expression of T-bet, GATA3 and RORγ genes.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20120415009472N22**
Registration date: **2020-12-19, 1399/09/29**
Registration timing: **prospective**

Last update: **2020-12-19, 1399/09/29**
Update count: **0**

Registration date

2020-12-19, 1399/09/29

Registrant information

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Iran University of Medical Sciences
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Iran (Islamic Republic of)
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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-01-10, 1399/10/21

Expected recruitment end date

2021-08-21, 1400/05/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of Ellagic acid supplementation on disease severity, expression of involved genes in pathogenesis, and levels of immunity and inflammatory biomarkers in patients with Multiple Sclerosis

Public title

Ellagic acid in multiple sclerosis

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria:

Patient informed consent Disease diagnosis based on McDonald's criteria and MRI by a neurologist EDSS score less than 5.5 Relapsing-remitting status of the disease age between 18 and 55 years

Exclusion criteria:

Reluctance to participate in the study Take nutritional supplements, antioxidants, and ellagic acid during a month before the start of the study and during the study (except for routine supplements that are part of the treatment plan for all patients, including vitamin D) Taking nonsteroidal anti-inflammatory drugs, estrogen, progesterone, immunosuppressives, diuretics, and corticosteroids during a month before the study Patients with inflammatory bowel disease (IBD), rheumatoid arthritis, systemic lupus erythematosus, type 1 diabetes, and other autoimmune diseases are excluded from the study. Pregnancy and lactation Drug abuse

Age

From **18 years** old to **55 years** old

Gender

Both

Phase

3

Groups that have been masked

- Participant
- Care provider
- Investigator
- Outcome assessor

Sample size

Target sample size: **46**

Randomization (investigator's opinion)

Randomized

Randomization description

Random allocation will be done with the balanced block method and 4 blocks will be used. Assuming having two groups A and B, by random permutation method, we will have these block modeling: AABB, ABAB, ABBA, BAAB, BBAA, BABA, in which subjects will be placed in these blocks in order of entering in the study and each patient randomly will be assigned in the intervention or control groups.

Blinding (investigator's opinion)

Double blinded

Blinding description

The method of blinding is that the statistical consultant encodes the supplements from 1 to 46 and the researcher, without knowing the type of supplement or placebo, will present the supplements to the subjects from the beginning of the study.

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Iran University of Medical Sciences

Street address

Iran University of Medical Sciences, Shahid Hemmat Highway, next to Milad tower.

City

Tehran

Province

Tehran

Postal code

1449614535

Approval date

2020-12-13, 1399/09/23

Ethics committee reference number

IR.IUMS.REC.1399.1000

Health conditions studied

1

Description of health condition studied

Multiple Sclerosis

ICD-10 code

G35

ICD-10 code description

Multiple sclerosis

Primary outcomes

1

Description

Expanded Disability Status Scale

Timepoint

At the beginning of the study and 12 weeks after supplementation with ellagic acid

Method of measurement

Extensive Disability Scale Questionnaire

Secondary outcomes

1

Description
Interleukin 17
Timepoint
At the beginning of the study and 12 weeks after supplementation with ellagic acid
Method of measurement
Interleukin 17 kit by ELISA method

2

Description
Interleukin 4
Timepoint
At the beginning of the study and 12 weeks after supplementation with ellagic acid
Method of measurement
Interleukin 4 kit by ELISA method

3

Description
Transforming growth factor beta (TGF-β)
Timepoint
At the beginning of the study and 12 weeks after supplementation with ellagic acid
Method of measurement
TGF-β kit by ELISA method

4

Description
Interferon gamma
Timepoint
At the beginning of the study and 12 weeks after supplementation with ellagic acid
Method of measurement
Interferon gamma kit by ELISA method

5

Description
T-bet gene expression
Timepoint
At the beginning of the study and 12 weeks after supplementation with ellagic acid
Method of measurement
Standard quantitative real - time PCR

6

Description
GATA3 gene expression
Timepoint
At the beginning of the study and 12 weeks after supplementation with ellagic acid
Method of measurement
Standard quantitative real - time PCR

7

Description
RORγt gene expression
Timepoint
At the beginning of the study and 12 weeks after supplementation with ellagic acid
Method of measurement
Standard quantitative real - time PCR

Intervention groups

1

Description
Intervention group: Intervention group: The intervention group receives two 90 mg capsules of ellagic acid daily for 12 weeks before lunch and dinner (made by Exir Gostar Company).
Category
Treatment - Other

2

Description
Control group: The placebo group receives two placebo capsules (containing cellulose) in the same color, shape and smell as the ellagic acid supplement daily for 12 weeks before lunch and dinner (made by Exir Gostar).
Category
Placebo

Recruitment centers

1

Recruitment center
Name of recruitment center
Firouzgar hospital
Full name of responsible person
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
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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
Iran 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
Iran University of Medical Sciences
Full name of responsible person
Dr. Naheed Aryaeian
Position
Associate professor
Latest degree
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Person responsible for updating data

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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

Information on primary and secondary outcomes can be shared at the end of the study.

When the data will become available and for how long

6 months after the publication of the article

To whom data/document is available

All individuals, including researchers who work in university and scientific places, physicians, nutritionists and those engaged in the industry, can use these documentations.

Under which criteria data/document could be used

Use of the documentation is permitted if there is no copyng and no citation or inappropriate citation.

From where data/document is obtainable

Dr. Naheed Aryaeian

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

Applicants will be able to access the data from the present study by sending an email to the corresponding author within a maximum of one week.

Comments