Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

Comparing the effects of β-D-Mannuronic acid with Placebo on disease activity and inflammatory markers in patients with Rheumatoid Arthritis

Protocol summary

Summary

The main target of this study is to assess the safety and efficacy of β-D-Mannuronic acid in patients suffering from Rheumatoid Arthritis. B-D-Mannuronic acid which is an anti-inflammatory agent, is ranked in the family of nonsteroidal anti-inflammatory drugs. This agent has expressed qualified therapeutic effects with the greatest tolerability and safety in different experimental models like experimental model of Multiple schlerosis, Rheumatoid arthritis, nephrotic syndrome and acute glomerulonephritis. In this randomized controlled trial, 203 patients afflicted by Rheumatoid Arthritis, diagnosed based on the American College of Rheumatology (ACR) Diagnostic Criteria that have active disease, will be examined. Furthermore, these patients should not have other concomitant diseases such as Hepatic, renal, cardiovascular diseases or malignancies. Written informed consent will be signed by the patients. Then Patients will be randomly divided into two groups (Treatment and Control group). Treatment group (112 patients) will receive β-D-Mannuronic acid 1500 mg/day (three 500 mg tablets/day)with conventional immunosuppressive drugs and Control group (91 patients)) will receive placebo with conventional immunosuppressive drugs orally for 12 weeks. Medical history and clinical parameters including the serum level of CRP, ESR, RF and Anti CCP will be evaluated at baseline and 12 weeks after treatment. The manner of blinding in this study is so neither participants in the study nor the persons who perform the test will be aware of the intervention. In order to allocate the patients randomly into two groups mentioned above, at first 29 blocks of 7 with C and T letters (The letters indicate the Treatment and Control groups) are created. 4 patients of each block belong to the treatment group and 3 patients belong to the control group. Then the blocks are randomly selected and arranged to reach a sequential combination of 203 letters. Each letter will be placed in a sealed packet according to the obtained sequence

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2017100213739N10**
Registration date: **2017-11-02, 1396/08/11**
Registration timing: **registered_while_recruiting**

Last update:
Update count: **0**

Registration date

2017-11-02, 1396/08/11

Registrant information

Name

Abbas Mirshafiey

Name of organization / entity

Tehran University of Medical Sciences

Country

Iran (Islamic Republic of)

Phone

+98 21 8895 4913

Email address

mirshafiey@tums.ac.ir

Recruitment status

Recruitment complete

Funding source

Vice-Chancellor for Research, Tehran University of Medical Sciences

Expected recruitment start date

2017-10-16, 1396/07/24

Expected recruitment end date

2018-03-20, 1396/12/29

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title
Comparing the effects of β-D-Mannuronic acid with Placebo on disease activity and inflammatory markers in patients with Rheumatoid Arthritis

Public title
Evaluation of the therapeutic efficacy of Mannuronic Acid in Rheumatoid Arthritis

Purpose
Treatment

Inclusion/Exclusion criteria
Inclusion Criteria: 1.Patients should be 18-65 year old, afflicted by Rheumatoid Arthritis, diagnosed based on the American College of Rheumatology (ACR) Diagnostic Criteria by a rheumatology specialist after evaluating the clinical parameters such as ESR, RF, CRP and Anti-CCP. 2.Each patient must sign written informed consent. 3.The disease in all patients should be in active form (DAS28>2.6) 4.None of patients must suffer from another concomitant diseases like Hepatic, renal, haematological, gastrointestinal, endocrine, cardiovascular, pulmonary, neurological or cerebral diseases. Exclusion Criteria: 1.History of fever and Infectious diseases, positive pregnancy test or lactation, other collagen- vascular diseases, other auto-immune diseases and Malignancies. 2.Enrolling in another clinical trial study within last 4 weeks 3.Suffering from other concomitant diseases such as hepatic, renal, hematological, gastrointestinal, endocrine, cardiovascular, pulmonary, neurological or cerebral disease.

Age
From **18 years** old to **65 years** old

Gender
Both

Phase
3

Groups that have been masked
No information

Sample size
Target sample size: **203**

Randomization (investigator's opinion)
Randomized

Randomization description

Blinding (investigator's opinion)
Double blinded

Blinding description

Placebo
Used

Assignment
Parallel

Other design features
In order to allocate the patients randomly into two groups of treatment and control, at first 29 blocks of 7 with C and T letters (The letters indicate the intervention and control groups) are created in each 4 patients are belonged to the intervention group and 3 patients are belonged to the control group). Then the blocks are randomly selected and arranged to obtain a sequential combination of 203 letters. Each letter will be placed in a sealed packet according to the obtained sequence.

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics committee of Mashhad University of Medical Sciences

Street address
Mashhad University of Medical Sciences-Mashhad-Iran

City
Mashhad

Postal code
-

Approval date
2017-09-06, 1396/06/15

Ethics committee reference number
IR.MUMS.fm.REC.1396.309

Health conditions studied

1

Description of health condition studied
Rheumatoid Arthritis

ICD-10 code
M05

ICD-10 code description
Seropositive Rheumatoid Arthritis

Primary outcomes

1

Description
Morning stiffness

Timepoint
At baseline and after 12 weeks of treatment

Method of measurement
Taking history and Questionnaire

2

Description
The number of swollen joints

Timepoint
At baseline and after 12 weeks of treatment

Method of measurement
Examination

3

Description
Pain

Timepoint
At baseline and after 12 weeks of treatment

Method of measurement
Examination

4

Description
Severity of disease
Timepoint
At baseline and after 12 weeks of treatment
Method of measurement
Taking history and Questionnaire

Secondary outcomes

1

Description
Serum level of CRP
Timepoint
At baseline and after 12 weeks of treatment
Method of measurement
Turbidometry

2

Description
level of ESR
Timepoint
At baseline and after 12 weeks of treatment
Method of measurement
See through Westergren method

3

Description
Anti-cyclic Citrullinated Peptide (anti-CCP) Antibodies
Timepoint
At baseline and after 12 weeks of treatment
Method of measurement
ELISA

4

Description
Rheumatoid factor (RF)
Timepoint
At baseline and after 12 weeks of treatment
Method of measurement
See through Agglutination

Intervention groups

1

Description
The Treatment group will receive β-D-Mannuronic acid 1500 mg/day (three oral 500 mg tablets/day) which is produced from the decomposition of Alginate powder (a safe and natural substance used in food and pharmaceutical industries) for 12 weeks. It should be mentioned that Alginate powder is purchased from Sigma Corporation of U.S.A and β-D-Mannuronic acid is produced from it's decomposition in central laboratory of immunology department at School of Public Health and Institute of Health Research affiliated by Tehran University of Medical Sciences.
Category
Treatment - Drugs

2

Description
The control group will receive orally 1500 mg/day (three 500 mg tablets/day) of plcebo for 12 weeks.
Category
Treatment - Drugs

Recruitment centers

1

Recruitment center
Name of recruitment center
Rheumatology research center, Mashhad University of Medical Sciences
Full name of responsible person
Dr Zahra Rezaee Yazdi-Professor
Street address
Ghaem Hospital, Ahmad abad st, Doctor shariati sq
City
Mashhad

2

Recruitment center
Name of recruitment center
Rheumatology research center, Shahid Beheshti University of Medical Sciences
Full name of responsible person
Dr Arman Ahmadzadeh-Assistant Professor
Street address
Loghman-e-Hakim Hospital, Makhsous st, Lashgar crossroad
City
Tehran

3

Recruitment center
Name of recruitment center
Rheumatology research center, Yazd University of Medical Sciences
Full name of responsible person
Dr Soleymani-Associate Professor
Street address
Shahid Sadooghi Hospital, Ebnesina st, Shahid Ghandi Boulevard
City
Yazd

4

Recruitment center
Name of recruitment center
Rheumatology research center, Eslam abad University of Medical Sciences
Full name of responsible person
Dr Abid farooghi-Professor
Street address

G8/3 sector, Loghman hakim st

City

Eslam abad

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice-Chancellor for Research, Tehran University of Medical Sciences

Full name of responsible person

Dr. Masood Younesian (MD, PhD, Vice-Chancellor for Research, Tehran University of Medical Sciences)

Street address

6th floor, central building of Tehran University of Medical Sciences, On the Corner of Keshavarz Blvd. and Qods Street, Keshavarz Blvd., Tehran, Iran

City

Tehran

Grant name

Grant code / Reference number

-

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Vice-Chancellor for Research, Tehran University of Medical Sciences

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

empty

Person responsible for general inquiries

Contact

Name of organization / entity

Department of pathobiology, School of Public Health, Tehran University of Medical Sciences

Full name of responsible person

Dr. Abbas Mirshafiey

Position

Immunology PHD, Master of Immunology department in public health school

Other areas of specialty/work

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Person responsible for scientific inquiries

Contact

Name of organization / entity

Department of pathobiology, School of Public Health, Tehran University of Medical Sciences

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Other areas of specialty/work

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Person responsible for updating data

Contact

Name of organization / entity

Department of pathobiology, School of Public Health, Tehran University of Medical Sciences

Full name of responsible person

Mona Aslani-Saeide Omidian

Position

Msc student in Immunology

Other areas of specialty/work

Street address

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Web page address

-

Sharing plan

Deidentified Individual Participant Data Set (IPD)

empty

Study Protocol

empty

Statistical Analysis Plan

empty

Informed Consent Form

empty

Clinical Study Report

empty

Analytic Code

empty

Data Dictionary

empty