Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

Gastrointestinal Tolerability of Diroximel Fumarate Compared with Dimethyl Fumarate in Patients with Relapsing–Remitting Multiple Sclerosis: Clinical Trial Study

Protocol summary

Study aim

The primary objective of this study is to compare the gastrointestinal tolerability of diroximel fumarate versus dimethyl fumarate in patients with relapsing–remitting multiple sclerosis during a 5-week treatment period

Design

This study is a randomized, two-arm, parallel-group, open-label phase 2 clinical trial conducted on 100 patients with relapsing–remitting multiple sclerosis. Randomization was performed in a 1:1 ratio using the RAND function in Microsoft Excel. The sample size was calculated based on the comparison of gastrointestinal adverse event incidence between the two groups, with a significance level of 0.10 and 70% power

Settings and conduct

This is a randomized, prospective clinical trial conducted at Golestan Hospital, Ahvaz Jundishapur University of Medical Sciences. Eligible RRMS patients are randomized into two groups and receive oral medications for 5 weeks. The study is open-label with no blinding.

Participants/Inclusion and exclusion criteria

Patients with relapsing–remitting multiple sclerosis (RRMS) Age between 18 and 65 years Diagnosis of RRMS based on McDonald criteria Ability to take oral medications Not pregnant or breastfeeding Signed informed consen

Intervention groups

Group 1: Diroximel fumarate (DRF) Dose: 231 mg twice daily in the first week Dose: 462 mg twice daily from week 2 to week 5 Group 2: Dimethyl fumarate (DMF) Dose: 120 mg twice daily in the first week Dose: 240 mg twice daily from week 2 to week 5

Main outcome variables

Gastrointestinal tolerability; severity of nausea; frequency of vomiting; upper abdominal pain; lower abdominal pain; diarrhea; impact of gastrointestinal symptoms on daily activities; incidence of at least one gastrointestinal adverse event

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20260202068737N1**
Registration date: **2026-02-05, 1404/11/16**
Registration timing: **prospective**

Last update: **2026-02-05, 1404/11/16**
Update count: **0**

Registration date

2026-02-05, 1404/11/16

Registrant information

Name

Roya Bahram pourian

Name of organization / entity

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2026-03-20, 1404/12/29

Expected recruitment end date

2026-04-23, 1405/02/03

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date
empty

Scientific title
Gastrointestinal Tolerability of Diroximel Fumarate Compared with Dimethyl Fumarate in Patients with Relapsing–Remitting Multiple Sclerosis: Clinical Trial Study

Public title
A Clinical Trial Comparing Gastrointestinal Tolerability of Diroximel Fumarate and Dimethyl Fumarate in Patients with RRMS

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
A confirmed diagnosis of relapsing–remitting multiple sclerosis (RRMS) according to the McDonald criteria Age between 18 and 65 years at the time of study entry. Not pregnant or breastfeeding at screening, with agreement to use effective contraception during the study period No history of hypersensitivity or severe adverse reactions to fumarates or related compounds. No active or clinically significant gastrointestinal disease that could interfere with drug tolerability assessment No active or clinically significant gastrointestinal disease that could interfere with drug tolerability assessment No severe hepatic or renal impairment based on medical history, physical examination, and baseline laboratory evaluations. Acceptable baseline laboratory values, including hematologic and biochemical parameters. No diagnosis of progressive forms of multiple sclerosis. No prior treatment with dimethyl fumarate or switching from DMF to DRF before screening. Willingness and ability to complete daily study questionnaires throughout the follow-up period. Provision of written informed consent prior to enrollment and randomization.

Exclusion criteria:

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

Gender
Both

Phase
4

Groups that have been masked
No information

Sample size
Target sample size: **40**

Randomization (investigator's opinion)
Randomized

Randomization description
After confirming eligibility criteria and obtaining written informed consent, eligible patients will be randomly assigned in a 1:1 allocation ratio to receive either diroximel fumarate (DRF) or dimethyl fumarate (DMF). Randomization will be performed by a statistician using a random number table or validated statistical software (such as SPSS or R). To minimize selection bias and ensure balance of baseline characteristics between the two treatment groups, treatment allocation will be conducted in an unpredictable manner. Given the open-label design of the study, both investigators and participants will be aware of the assigned treatment

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Research Ethics Committee of the University

Street address
Block 4 (Unit Golestan 4), Golestan Hospital, Golestan Street, Golestan Town, Ahvaz, Khuzestan Province, Iran Ahvaz Jundishapur University of Medical Sciences

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6115613811

Approval date
2026-01-30, 1404/11/10

Ethics committee reference number
IR.AJUMS.REC.1404.584

Health conditions studied

1

Description of health condition studied
Relapsing–Remitting Multiple Sclerosis (RRMS)

ICD-10 code
G35

ICD-10 code description
Multiple sclerosis

Primary outcomes

1

Description
Drug gastrointestinal tolerability, measured by IGISIS and GGISIS scales. This variable includes assessment of the occurrence, severity, duration, and functional impact of key gastrointestinal symptoms such as nausea, vomiting, abdominal pain, and diarrhea during the 5-week treatment period

Timepoint
Measurements and assessments will be conducted daily from the first day of treatment (week 1) through the end

of week 5 (day 35). Additionally, safety follow-ups and adverse event monitoring will continue for two weeks after the treatment period.

Method of measurement

The primary outcome, gastrointestinal tolerability, is measured using two validated questionnaires: IGISIS (Individual Gastrointestinal Symptom and Impact Scale) and GGISIS (Global Gastrointestinal Symptom and Impact Scale). Patients report the severity of gastrointestinal symptoms—including nausea, vomiting, upper and lower abdominal pain, and diarrhea—daily on a numerical scale from 0 to 10. Additionally, the duration of symptoms and their impact on daily activities are recorded. These questionnaires are completed daily, and the data are collected for statistical analysis

Secondary outcomes

1

Description

Treatment adherence: The extent of continued drug use and the number of doses taken during the 5-week period

Timepoint

Measurements and assessments will be conducted daily from the first day of treatment (week 1) through the end of week 5 (day 35). Additionally, safety follow-ups and adverse event monitoring will continue for two weeks after the treatment period

Method of measurement

The primary outcome, gastrointestinal tolerability, is measured using two validated questionnaires: IGISIS (Individual Gastrointestinal Symptom and Impact Scale) and GGISIS (Global Gastrointestinal Symptom and Impact Scale). Patients report the severity of gastrointestinal symptoms—including nausea, vomiting, upper and lower abdominal pain, and diarrhea—daily on a numerical scale from 0 to 10. Additionally, the duration of symptoms and their impact on daily activities are recorded. These questionnaires are completed daily, and the data are collected for statistical analysis

2

Description

Health-related quality of life (HRQoL): Assessed by the SF-36 questionnaire at baseline and at the end of treatment, including physical (PCS) and mental (MCS) component summaries

Timepoint

Measurements and assessments will be conducted daily from the first day of treatment (week 1) through the end of week 5 (day 35). Additionally, safety follow-ups and adverse event monitoring will continue for two weeks after the treatment period

Method of measurement

Health-related quality of life (HRQoL) is assessed using the standardized SF-36 questionnaire at baseline and at the end of the treatment period. The questionnaire covers 8 domains, with scores ranging from 0 to 100 for each domain. Two main summary components, Physical Component Summary (PCS) and Mental Component Summary (MCS), are derived from the questionnaire. Higher scores indicate better quality of life

Intervention groups

1

Description

Intervention group: The first group receives diroximel fumarate (DRF) with a dose of 231 mg twice daily during the first week, and 462 mg twice daily from week 2 to week 5

Category

Treatment - Drugs

2

Description

Intervention group: The second group receives dimethyl fumarate (DMF) with a dose of 120 mg twice daily during the first week, and 240 mg twice daily from week 2 to week 5

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

Golestan Hospital, Ahvaz Jundishapur University of Medical Sciences

Full name of responsible person

Davood Kashipazha

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Ahvaz 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
Ahvaz 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
Ahvaz University of Medical Sciences

Full name of responsible person
Roya Bahram pourian

Position
Resident

Latest degree
Specialist

Other areas of specialty/work
Neuroscience

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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

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available