

Clinical Trial Protocol

Iranian Registry of Clinical Trials

07 Jul 2026

Bioequivalence study of Metformin 500mg tablet manufactured by Ronak Pharm versus originator brand in healthy volunteers in the fasted and fed conditions

Protocol summary

Study aim

Bioequivalence Study of Metformin 500 mg tablet (Ronophage) manufactured by Ronak Pharm company versus originator brand (Glucophage XR) manufactured by Merck

Design

Bioequivalence study, crossover, single-blinded, 36 healthy volunteers. Simple randomization was used for randomization

Settings and conduct

The study is a single-blinded, cross-over and fasting, and on four series of healthy volunteers. The study will be done in two periods (24h). The interval between these two periods is a week. In the first round of the study, the candidates divide into four groups. the first group receives a test tablet and the second group receives a brand tablet in fasted condition and the third group receives a test tablet and the forth group receives a brand tablet in fed condition . Blood samples are collected immediately before and after drug administration by volunteers. Then, drug extraction is done and samples are ready for analysis. These steps are performed in Radin laboratory in Tabriz

Participants/Inclusion and exclusion criteria

Inclusion criteria: General Health (Liver, Heart, and Kidney); Body Mass Index (18-28); Informed consent; age (18-55 years old). Exclusion criteria: smoking; history of cardiovascular disease; history of liver and kidney disease; alcohol and drug addiction; history of allergy to Metformin

Intervention groups

Intervention group 1: Glucophage XR-500mg tablet as a reference Intervention group 2: Ronophage 500 mg tablet as a test

Main outcome variables

Maximum drug concentration; time to reach maximum drug concentration; half-life of drug

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200623047902N27**

Registration date: **2023-03-19, 1401/12/28**

Registration timing: **prospective**

Last update: **2023-03-19, 1401/12/28**

Update count: **0**

Registration date

2023-03-19, 1401/12/28

Registrant information

Name

Elham Ghasemian

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 21 6696 5196

Email address

ghasemian@zistdaru.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-04-21, 1402/02/01

Expected recruitment end date

2024-03-18, 1402/12/28

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Bioequivalence study of Metformin 500mg tablet manufactured by Ronak Pharm versus originator brand in healthy volunteers in the fasted and fed conditions

Public title

Bioequivalence study of Metformin 500mg tablet

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

General Health (Liver, Heart, and Kidney) Body Mass Index (18-28) Informed consent Age (18-55 years old)

Exclusion criteria:

Smoking History of cardiovascular disease History of liver and kidney disease Alcohol and drug addiction History of allergy to Metformin

Age

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

Gender

Both

Phase

Bioequivalence

Groups that have been masked

- Participant

Sample size

Target sample size: **36**

More than 1 sample in each individual

Number of samples in each individual: **36**

Blood sample

Randomization (investigator's opinion)

Randomized

Randomization description

People in the mentioned age group are invited to participate through the advertisement. People are then checked for health and healthy volunteers are identified. Each candidate is assigned a number from 1 to 36. The numbers are written on a plastic ball, poured into a container, and mixed. The balls are then removed randomly from the container. The first 9 no.s are considered as (first sequence: Ronak Pharm's medicine in fasting condition) and the second 9 no.s are considered as (second sequence: originator brand recipient in fasting condition)The third 9 no.s are considered as (third sequence: Ronak Pharm's medicine in fed condition) and the forth 9 no.s are considered as (forth sequence: originator brand recipient in fed condition). The volunteers don't have any information about taking the test drug or brand drug

Blinding (investigator's opinion)

Single blinded

Blinding description

This study is a single-blinded clinical trial (volunteers). Ronak Pharm's Metformin and Originator brand tablets are removed from their packaging by the executor and placed in similar and coded cans. Volunteers will not be informed about receiving the brand or test dosage form

Placebo

Not used

Assignment

Crossover

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Research Ethics Committees of Tabriz University of Medical Sciences

Street address

International Relations Office, No 2 Central Building, Tabriz University of Medical Sciences, Golgasht Street,

City

Tabriz

Province

East Azarbaijan

Postal code

5165665931

Approval date

2023-02-20, 1401/12/01

Ethics committee reference number

IR.TBZMED.REC.1401.1062

Health conditions studied

1

Description of health condition studied

This study is performed on healthy volunteers.

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

The plasma concentration of the drug

Timepoint

Pre-dose, 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 6, 8, 10, 12, and 24 h after drug administration

Method of measurement

Liquid Chromatography Mass-Mass

Secondary outcomes

1

Description

Time to reach maximum plasma concentration

Timepoint

After intervention

Method of measurement

The time to reach the maximum drug concentration in plasma is recorded

2

Description

Extent of absorption

Timepoint

After intervention

Method of measurement

Calculation of area under curve of concentration -time

Intervention groups

1

Description

Intervention group: single dose, one oral tablet of Glucophage- XR 500mg manufactured by Merck, as a reference product

Category

Treatment - Drugs

2

Description

Intervention group: Single dose, one oral tablet of Ronophage 500 mg manufactured by Ronak Pharm company as a test product

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

Radin Laboratory

Full name of responsible person

Javad Shokri

Street address

No.22, first floor, Azadi alley, Moalem st., Abureihan St

City

Tabriz

Province

East Azarbaijan

Postal code

5154995671

Phone

+98 914 313 5843

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Shokri.j@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Ronak Pharm company

Full name of responsible person

Saeed Maleki

Street address

No. 22, No. 22, Mollasadra St., Sheik Bahai Shamal St., Arafi Shirazi St., Vanak Square,

City

Tehran

Province

Tehran

Postal code

1993644514

Phone

+98 21 9107 9170

Email

info@ronakpharm.com

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Ronak Pharm company

Proportion provided by this source

100

Public or private sector

Private

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Industry

Person responsible for general inquiries

Contact

Name of organization / entity

Islamic Azad University

Full name of responsible person

Elham Ghasemian

Position

Visiting professor

Latest degree

Ph.D.

Other areas of specialty/work

Medical Pharmacy

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Person responsible for scientific

inquiries

Contact

Name of organization / entity

Islamic Azad University

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

These data are as secure between researchers and
related industries.

Study Protocol

No - There is not a plan to make this available

Statistical Analysis Plan

No - There is not a plan to make this available

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

No - There is not 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