Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

Comparison of the Efficacy of Letrozole Pretreatment Followed by Misoprostol Versus Only Misoprostol for the Management of Missed Abortion

Protocol summary

Study aim

Comparison of the efficacy of letrozole pretreatment followed by misoprostol versus misoprostol alone in successful induction of abortion in women with missed abortion

Design

Randomized controlled clinical trial with parallel groups, double-blind, phase 3, on 78 patients. Randomization performed using a sequence generated by Randomization Main Table software.

Settings and conduct

The study is conducted in the obstetrics and gynecology ward of Shariati Hospital in Bandar Abbas. Eligible patients diagnosed with missed abortion via ultrasound are randomly assigned to two groups. Drug packages are coded and identical in appearance. Participants, physicians, data collectors, and outcome assessors are blinded to group allocation.

Participants/Inclusion and exclusion criteria

Inclusion Criteria: Women ≥18 years; hospitalized with missed abortion diagnosis; gestational age ≤20 weeks and ≥50 days; acceptable general health; hemoglobin ≥10 g/dL; and diastolic BP <95 mmHg. Exclusion Criteria: History of underlying diseases (e.g., cancer, asthma); BP ≥130/80 mmHg; history of infant with anomalies; breastfeeding; prior use of study drugs; use of intrauterine devices (IUD); abnormal baseline labs; drug hypersensitivity; unwillingness to participate; non-adherence to scheduled visits; and vaginal bleeding.

Intervention groups

Intervention group: Oral letrozole daily for three days, followed by vaginal misoprostol; Control group: Oral placebo daily for three days, followed by vaginal misoprostol

Main outcome variables

Rate of complete uterine evacuation based on transvaginal ultrasound performed 48 hours after the last dose of misoprostol; need for surgical curettage.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20250414065324N1**
Registration date: **2025-07-12, 1404/04/21**
Registration timing: **prospective**

Last update: **2025-07-12, 1404/04/21**
Update count: **0**

Registration date

2025-07-12, 1404/04/21

Registrant information

Name

Arvin mahmodi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 44 3672 0698

Email address

a.ma8080@hums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2025-07-23, 1404/05/01

Expected recruitment end date

2026-04-20, 1405/01/31

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date
empty

Scientific title
Comparison of the Efficacy of Letrozole Pretreatment Followed by Misoprostol Versus Only Misoprostol for the Management of Missed Abortion

Public title
Management of the Missed Abortion

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Women Admitted to the Hospital with a Diagnosis of Missed Abortion Gestational Age ≥ 20 Weeks and ≤ 50 Days (Based on the First Sonography) Age ≥ 18 Years Old General Health Status Sufficient for Study Participation Hemoglobin Level ≥ 10 g/dL Diastolic Blood Pressure < 95 mmHg

Exclusion criteria:
History of Adrenal Disease, Cancer, Porphyria, Severe or Recurrent Liver Disease, Asthma, Thromboembolic Diseases Patients With Blood Pressure ≥ 130/80 mmHg History of Giving Birth to a Baby With Congenital Anomalies Breastfeeding Regular and Active Use of Prescribed, Hormonal, and Interfering Medications Prior to Study Entry Use of Intrauterine Device (IUD) Any Abnormalities in Baseline Tests Including: CBC, PT, PTT, INR, Urea, Creatinine, Na, K, Ca, Cl, Albumin, Fibrinogen, AST, ALT, ALP, Bili T, Bili D Symptoms of Allergy to any of the Prescribed Medications Unwillingness to Continue Participating in the Study or Withdrawing from Treatment at any Stage Failure to Attend Scheduled Follow-ups or Loss of Contact With the Research Team Heavy or Uncontrolled Vaginal Bleeding at any Point During the Intervention

Age
From **18 years** old

Gender
Female

Phase
3

Groups that have been masked

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

Sample size
Target sample size: **78**

Randomization (investigator's opinion)
Randomized

Randomization description
This study employed block randomization with a fixed block size. The unit of randomization was individual, and each participant was independently assigned to either the intervention or control group in a 1:1 ratio. The random sequence was generated using the Randomization Main Table software. No stratified randomization layers were applied. For allocation concealment, identically appearing, numbered drug packages were prepared by a pharmacist and distributed in a double-blind manner, ensuring that neither the participants nor the investigators were aware of group assignments.

Blinding (investigator's opinion)
Double blinded

Blinding description
A double-blind design was strictly implemented in this study. Participants, attending physicians, and research team members responsible for data collection and outcome assessment were all blinded to the type of intervention (letrozole vs. placebo). Drug packages were coded based on the randomization sequence and were identical in appearance, taste, and size. Allocation of the intervention was performed according to a pre-generated randomization table. Data analysts will conduct statistical analyses without knowledge of group assignments. No Data Safety and Monitoring Committee (DSMC) was established for this study.

Placebo
Used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

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

Street address
Chamran Blvd.

City
Bandar Abbas

Province
Hormozgan

Postal code
7916613885

Approval date
2024-05-20, 1403/02/31

Ethics committee reference number
IR.HUMS.REC.1403.075

Health conditions studied

1

Description of health condition studied
Missed Abortion

ICD-10 code
O02.1

ICD-10 code description
Missed abortion

Primary outcomes

1

Description
Rate of complete uterine evacuation, assessed via post-treatment transvaginal ultrasound
Timepoint
At baseline (Day 0): Prior to the intervention, transvaginal ultrasound is used to confirm the diagnosis of missed abortion. 48 hours after the last dose of misoprostol: Transvaginal ultrasound is used to assess for complete uterine evacuation.
Method of measurement
Transvaginal ultrasound performed by an obstetrics and gynecology specialist using a transvaginal ultrasound probe to assess retained products of conception within the uterine cavity

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Participants in this group receive oral letrozole at a dose of 10 milligrams per day for three consecutive days. Following the completion of letrozole administration, on the fourth day, vaginal misoprostol is administered at an initial dose of 800 micrograms, with up to two additional doses every 12 hours if necessary.Letrozole tablets (brand name: Letrozol, manufactured in Iran) are provided at a dosage of 10 milligrams. Letrozole is administered orally, and misoprostol is administered vaginally.Throughout the intervention process, vital signs and adverse effects are monitored and recorded regularly. If complete uterine evacuation is not achieved within 48 hours after the last dose of misoprostol, the patient will be referred for surgical curettage.
Category
Treatment - Drugs

2

Description
Control group: Participants in this group receive one placebo tablet per day for three consecutive days, identical in appearance to the letrozole tablets. Following the completion of placebo administration, vaginal misoprostol is administered on the fourth day at a dose of 800 micrograms, with up to two additional doses every 12 hours if needed. The placebo is taken orally, and misoprostol is administered vaginally. Vital signs and adverse events are monitored and documented regularly throughout the treatment period. If complete uterine evacuation is not achieved within 48 hours after the last misoprostol dose, the patient will be referred for surgical curettage.
Category
Placebo

Recruitment centers

1

Recruitment center
Name of recruitment center
Shariati Hospital
Full name of responsible person
Arvin Mahmoodi
Street address
Shahid Naser Blvd.
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7914964157
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info@hums.ac.ir

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Bandare-abbas University of Medical Sciences
Full name of responsible person
Shahram Zare
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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
Bandare-abbas 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
Bandare-abbas University of Medical Sciences
Full name of responsible person
Arvin Mahmoodi
Position
Resident physician
Latest degree
Medical doctor
Other areas of specialty/work
Gynecology and Obstetrics
Street address
International Affairs and Scientific Collaborations, Vice-Chancellery for Education of HUMS,Jomhuri Eslami Blvd, Bandar Abbas, IRAN
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Person responsible for scientific inquiries

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Position
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Person responsible for updating data

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Full name of responsible person
Arvin Mahmoodi
Position
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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
De-identified participant-level data related to primary outcomes; Individual participant data will be stored in a coded and de-identified format. Only data related to primary outcomes—such as uterine evacuation status, need for curettage, and immediate adverse events—will be available for sharing upon request, after removal of any identifying information.
When the data will become available and for how long
Access to the data will begin six months after the publication of the final study results and will remain available for at least three years.
To whom data/document is available

Data will be available only to researchers affiliated with recognized academic or research institutions, upon submission of a formal request.

Under which criteria data/document could be used

Data may be used solely for research purposes and statistical analyses related to reproductive health and maternal care. Secondary publication, commercial use, or usage without proper citation of the original source is not permitted. Applicants must submit a research proposal, intended use description, and a confidentiality agreement. Final access will be granted upon review and approval by the study team.

From where data/document is obtainable

Applicants seeking access to study data or documentation should submit a formal request via the following email address: Email: a.ma8080@hums.ac.ir Further coordination will be carried out through this channel.

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

The applicant must submit a formal request along with a research proposal and purpose description to the provided email address. The request will be reviewed within a maximum of 30 working days. If approved, de-identified data will be shared after signing a confidentiality agreement.

Comments