Clinical Trial Protocol
Iranian Registry of Clinical Trials

20 Sep 2026

comparison of hormone replacement therapy and mild ovarian stimulation for endometrial preparation in frozen embryo transfer in patients with polycystic ovarian syndrome

Protocol summary

Study aim

comparison of hormone replacement therapy and mild ovarian stimulation for endometrial preparation in frozen embryo transfer in patients with polycystic ovarian syndrome

Design

Randomized clinical trial study with parallel groups and phases 3 on 100 patients. Randomization will be done according to block randomization method using Random allocation software.

Settings and conduct

This study will be conducted on 100 patients referred to the infertility clinic of Al-Zahra Hospital with frozen embryos for embryo transfer without blinding.

Participants/Inclusion and exclusion criteria

Patients between the ages of 20 and 40 with the diagnosis of cystic ovarian factor infertility will be included in the study if no cysts are seen in the ovary.And in case of having congenital uterine anomalies ,severe endometriosis Previous history of failed transfer more than twice Endometrial

Intervention groups

The hormone replacement therapy group will be given estradiol tablets, and 10–12 days later, transvaginal sonography will be done. Progesterone will be added to the regimen if the endometrial thickness reaches ≥7.5 mm. Embryo transfer will done in the cleavage stage on the fourth day of progesterone injection. 400 mg progesterone suppository will be used twice daily to support the luteal phase, and 50 mg injectable progesterone will be administered once every three days. In the second group, letrozole 5mg will be administrated from the second to third day of menstruation for five days daily. Then, 37.5 - 150 mg of FSH at least 2 or more doses depend o ovarian response will be administrated once every two days or daily. When the diameter of at least one follicle reaches more than 17 mm, HCG will be administrated. Embryo transfer will be performed 5-6 days after HCG administration in the cleavage stage.

Main outcome variables

Successful pregnancy has been considered as the main outcome of this study.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20130603013566N14**
Registration date: **2024-10-14, 1403/07/23**
Registration timing: **prospective**

Last update: **2025-06-11, 1404/03/21**
Update count: **1**

Registration date

2024-10-14, 1403/07/23

Registrant information

Name
Kobra Hamdi
Name of organization / entity
Tabriz 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

2024-10-22, 1403/08/01

Expected recruitment end date
2025-10-23, 1404/08/01
Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
comparison of hormone replacement therapy and mild ovarian stimulation for endometrial preparation in frozen embryo transfer in patients with polycystic ovarian syndrome

Public title
comparison of hormone replacement therapy and mild ovarian stimulation for endometrial preparation in frozen embryo transfer in patients with polycystic ovarian syndrome
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Infertile women aged between 20 and 40 years Infertility factor of polycystic ovary syndrome
Exclusion criteria:
Congenital uterine anomalies Uterine fibroids Severe endometriosis Previous history of failed transfer more than twice
Age
From **20 years** old to **40 years** old
Gender
Female

Phase
3
Groups that have been masked
No information
Sample size
Target sample size: **100**
Randomization (investigator's opinion)
Randomized
Randomization description
Patients will be divided into intervention and control groups using block randomization based on generated numbers by Random allocation software. Thus, in this software, first the number of groups and the total number of the sample size will be entered, and then in the block section, the Block randomization method will be implemented. Patients will be allocated to intervention or control groups based on generated numbers.
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
Ethics Committee Of Tabriz University Of Medical Sciences
Street address
Third Floor, Number 2 Central Building, Golgasht Street
City
Tabriz
Province
East Azarbaijan
Postal code
5166616471
Approval date
2024-09-23, 1403/07/02
Ethics committee reference number
IR.TBZMED.REC.1403.492

Health conditions studied

1

Description of health condition studied
Infertility
ICD-10 code
N97.0
ICD-10 code description
Female infertility associated with anovulation

Primary outcomes

1

Description
Chemical pregnancy
Timepoint
14 days after embryo transfer
Method of measurement
HCG β blood test

2

Description
Number of gestational sacs
Timepoint
From week 5 of pregnancy
Method of measurement
Vaginal ultrasound

Secondary outcomes

1

Description

Fetal growth

Timepoint

From the beginning of the intervention until the end of the 12th week of pregnancy

Method of measurement

Ultrasound

Intervention groups

1

Description

Intervention group A: In the patients of the intervention group, where the preparation of the endometrium will be done by the administration of estrogen and progesterone hormones (artificial or HRT), the 2 mg estradiol pill will start from the second day of the menstrual cycle. On the second and third day, one number every 12 hours and then one number every 8 hours.10 to 12 days after taking estradiol, the next visit will be done and the thickness of the endometrium will be measured by transvaginal ultrasound. If the thickness of the endometrium is equal to or higher than 7.5 mm, injectable progesterone with a dose of 50 mg will be started, first one and then two daily.On the fourth day of starting progesterone, the transfer will be done.Luteal phase support will be done with 400 mg rectal progesterone suppositories every 12 hours and 50 mg progesterone ampoules every three days. In the 10th to 12th day visit, if the thickness of the endometrium is less than 7.5 mm, estradiol will be continued with the same dose or, if needed, higher doses, and the patient will be visited 3 to 4 days later and the endometrial examination will be repeated with ultrasound, and this work will be repeated until reaching The endometrium will continue to be 7.5 mm or more thick.If the thickness of the endometrium does not increase after a maximum of 20 days of taking estradiol, the treatment cycle will be stopped and the patient will be excluded from the study.

Category

Treatment - Drugs

2

Description

Intervention Group B: In the second group, endometrial preparation will be conducted using a mild ovarian stimulation method. Letrozole 5 mg (2 tablets of 2.5 mg) will be prescribed daily from the second or third day of menstruation for a duration of 5 days. Subsequently, FSH will be administered at a dose of 37.5 to a maximum of 150 mg daily or on alternate days (with a minimum of 2 doses and an increase in dosage if necessary). When at least one follicle exceeds 17 mm in size and the thickness of the uterine endometrium is more than 7.5 mm (provided that there are 14 to 16 follicles or fewer), HCG will be injected. One ampule of 5000 units of HCG will be administered. If more than three follicles are enlarged in total, to prevent OHSS, 1-2 cycles will be canceled, and embryo transfer will not be performed. The next day, a 400 mg rectal progesterone suppository will be started with one unit every night, and then 5-6 days after HCG injection, embryo transfer will be conducted at the cleavage stage. The 400 mg rectal progesterone suppository will continue until the pregnancy test is performed and, in the case of pregnancy, will continue until week 12. The number of transferred embryos and their grades will be recorded for each patient. In both groups, only grade 1 and grade 2 embryos will be transferred. Grade one embryos are defined as having blastomeres of equal size without cytoplasmic fragments. Grade two embryos have blastomeres of equal size with minimal cytoplasmic fragments. Grade three embryos have blastomeres that appear to be of the same size with slight cytoplasmic fragments. Grade four embryos have blastomeres of equal or unequal size with a significant number of cytoplasmic fragments. Finally, grade five embryos are characterized by blastomeres of varying sizes and a very high number of cytoplasmic fragments. Fourteen days after embryo transfer, a beta-hCG test will be conducted, and the pregnancy test results (positive or negative) will be recorded and compared in both groups. In patients with a positive pregnancy test, an abdominal ultrasound will be performed two weeks later to visualize the gestational sac, count, and check for fetal heart rate, and results will be compared in the group. Pregnant women will be monitored for fetal growth and the risk of miscarriage until the end of week 12 of pregnancy.

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

Alzahra Hospital

Full name of responsible person

Kobra Hamdi

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Alzahra Hospital, South Artesh St.,Tabriz, iran

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice chancellor for Research, Tabriz University Of Medical Sciences

Full name of responsible person

Dr.Parviz Shahabi

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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
Vice chancellor for Research, Tabriz 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
Tabriz University of Medical Sciences
Full name of responsible person
Kobra Hamdi
Position
Professor of Obstetrics Genecology
Latest degree
Subspecialist
Other areas of specialty/work
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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