

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

28 May 2026

### The effect of adding letrozole to gonadotropin on pregnancy outcomes in patients who are the candidate for assisted reproductive techniques

#### Protocol summary

##### Study aim

Effect of adding letrozole to gonadotropin on pregnancy outcomes

##### Design

Clinical trials, sample size 100 patients, phase 3 of the clinical trial, with the control group, with parallel groups, without blindness, randomized with an enveloped packet.

##### Settings and conduct

This Randomized clinical trial without blindness is conducted for evaluating the effect of intrauterine injection of PRP in Asherman patients referred to Shahid Sadoughi Hospital or Research and Clinical Center for Infertility, Yazd, Iran.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria: Infertile patients which are the candidate for ART. Exclusion criteria: History of endocrine disorders, Intrauterine abnormality (uterine polyp & submucosal fibroma & intrauterine adhesions), Azoospermia of partner Severe endometriosis

##### Intervention groups

Intervention group: since the second day of the cycle all patients Will receive 150 unit gonadotropin, all patients in this group will receive 5 mg letrozole orally science the second day of the cycle When dominant follicle reached to 12-13 mm, antagonist.25 mg will be injected daily subcutaneously. when dominant follicle reaches 17 mm, final triggering will be done. Control group: since the second day of the cycle all patients Will receive 150 unit gonadotropin, When the dominant follicle reached 12-13 mm, antagonist.25 mg will be injected daily subcutaneously. when dominant follicle reaches 17 mm, final triggering will be done.

##### Main outcome variables

Chemical pregnancy rate, clinical pregnancy rate

#### General information

##### Reason for update

Updating the trial according to the last changes in methods and adding results

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20110509006420N19**

Registration date: **2018-09-18, 1397/06/27**

Registration timing: **registered\_while\_recruiting**

Last update: **2021-03-31, 1400/01/11**

Update count: **2**

##### Registration date

2018-09-18, 1397/06/27

##### Registrant information

##### Name

Maryam Eftekhari

##### Name of organization / entity

Yazd Research and Clinical Center for Infertility

##### Country

Iran (Islamic Republic of)

##### Phone

+98 35182470856

##### Email address

eftekhari@ssu.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2018-08-01, 1397/05/10

##### Expected recruitment end date

2019-02-01, 1397/11/12

##### Actual recruitment start date

2018-08-01, 1397/05/10

##### Actual recruitment end date

2018-12-30, 1397/10/09

##### Trial completion date

2019-02-15, 1397/11/26

##### Scientific title

The effect of adding letrozole to gonadotropin on pregnancy outcomes in patients who are the candidate for assisted reproductive techniques

## Public title

Letrozole in assisted reproductive techniques protocol

## Purpose

Treatment

## Inclusion/Exclusion criteria

### Inclusion criteria:

Patients referred to the Infertility Center, which is undergoing ovulation induction for assisted reproductive techniques. normal ovarian reserve

### Exclusion criteria:

History of endocrine disorders Intrauterine abnormality (uterine polyp & sub mucosal fibroma & intrauterine adhesions) Azoospermia of partner Severe endometriosis

## Age

From **18 years** old to **40 years** old

## Gender

Female

## Phase

2

## Groups that have been masked

*No information*

## Sample size

Target sample size: **100**

Actual sample size reached: **100**

## Randomization (investigator's opinion)

Randomized

## Randomization description

Using computer-generated random numbers in wrapped, unlabeled envelope each holding a unique number.

## 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

Ethic committee of Yazd research center for infertility- Shahid Sadoughi University of Medical Scienc

##### Street address

Bouali

##### City

Yazd

##### Province

Yazd

##### Postal code

8916978477

## Approval date

2018-06-20, 1397/03/30

## Ethics committee reference number

lr.SSU.RSI.REC.1397.009

## Health conditions studied

### 1

#### Description of health condition studied

female Infertility

#### ICD-10 code

N97.9

#### ICD-10 code description

Female infertility, unspecified

## Primary outcomes

### 1

#### Description

Chemical pregnancy

#### Timepoint

15 days after embryo transfer

#### Method of measurement

Blood laboratory kit

### 2

#### Description

Clinical pregnancy

#### Timepoint

3 weeks after positive beta-h Cg

#### Method of measurement

Observation of fetal heart activity by transvaginal ultrasonography

## Secondary outcomes

empty

## Intervention groups

### 1

#### Description

Control group: Antagonist group: since the second day of the cycle all patients Will receive 150 unit of cinal f(cinagen-Iran) Subcutaneously When dominant follicle reached to 12-13 mm, cetrotide (Merck- Serono Germany).25 mg will be injected daily subcutaneously. when dominant follicle reaches to 17 mm, final triggering will be done by HCG (Pregnyl - Germany) intramuscular and .2cc decapeptide( Ferring, Germany) Subcutaneously and 36 hours later oocytes pick up will be done.

#### Category

Treatment - Drugs

### 2

#### Description

Intervention group: antagonist group: since the second day of the cycle all patients Will receive 150 unit of cinal f(cinagen-Iran) Subcutaneously, all patients in this group will receive 5 mg letrozole (Iran hormone-Iran)) orally science send day of cycle, When dominant follicle reached to 12-13 mm, cetrotide (Merck- Serono Germany).25 mg will be injected daily subcutaneously. when dominant follicle reaches to 17 mm, final triggering will be done by HCG (Pregnyl - Germany) intramuscular and .2cc decapeptide( Ferring, Germany) Subcutaneously and 36 hours later oocytes pick up will be done.

**Category**

Treatment - Drugs

**Recruitment centers**

1

**Recruitment center**

**Name of recruitment center**

Yazd Reaserch and clinical for infertility

**Full name of responsible person**

Abbas aflatoonian

**Street address**

Bouali

**City**

Yazd

**Province**

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**Postal code**

8916877391

**Phone**

+98 35 3824 7085

**Email**

abbas/aflatoonian@ssu.ac.ir

**Sponsors / Funding sources**

1

**Sponsor**

**Name of organization / entity**

Yazd University of Medical Sciences

**Full name of responsible person**

Masoud Mirzaei

**Street address**

Shahid Sadoughi

**City**

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**Province**

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**Postal code**

8916978477

**Phone**

+98 35 3724 0171

**Email**

masoud\_mirzaei@hotmail.com

**Grant name**

**Grant code / Reference number**

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

Yes

**Title of funding source**

Yazd 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**

Yazd University of Medical Sciences

**Full name of responsible person**

Maryam Eftekhari

**Position**

Associate professor

**Latest degree**

Medical doctor

**Other areas of specialty/work**

Gynecology and Obstetrics

**Street address**

Bouali

**City**

Yazd

**Province**

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eftekharmaryam@yahoo.com

**Person responsible for scientific inquiries**

**Contact**

**Name of organization / entity**

Yazd University of Medical Sciences

**Full name of responsible person**

Maryam Eftekhari

**Position**

Associate professor

**Latest degree**

Medical doctor

**Other areas of specialty/work**

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## Person responsible for updating data

### Contact

**Name of organization / entity**

Yazd University of Medical Sciences

**Full name of responsible person**

Maryam Eftekhar

**Position**

Associate professor

**Latest degree**

Medical doctor

**Other areas of specialty/work**

Gynecology and Obstetrics

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**Province**

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**Postal code**

8916877391

**Phone**

+98 35 3824 7085

**Email**

eftekharmaryam@yahoo.com

## 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**

Due to the privacy of patients

**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**

The study protocol, the statistical analysis map, the clinical study report will be available after the publishing of the article.

**When the data will become available and for how long**

After publishing the article

**To whom data/document is available**

Researchers working in academic institutions

**Under which criteria data/document could be used**

use in the retrospective study

**From where data/document is obtainable**

use in the retrospective study

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

Request from the Research Deputy, submitted to the Research Council of the Center if the request accepts its referral to the security and after completion of the relevant forms, the request is referred to the research experts and then get the data.

### Comments

## Trial results

### Please tick if results have been published

Yes

### Summary result posting date

2021-03-07, 1399/12/17

### Table of baseline comparison

### Participant flow diagram

### Table of variable outcomes' results

### Table of adverse events

### First publication date

2020-04-30, 1399/02/11

### Abstract of published paper

Abstract Background Aromatase inhibitors prevent the aromatization of androgens into estrogens, which reduces the negative feedback of estrogen on the hypothalamic-pituitary axis. It is clear that increasing the secretion of follicle-stimulating hormones results in an increased follicular growth. Objective This study aimed to evaluate the effect of adding letrozole to gonadotropin on in vitro fertilization outcomes in normal responders. Materials and Methods In this randomized clinical trial, 100 normal responder women candidate for controlled ovarian stimulation were randomly enrolled in two groups (n = 50/each). In the case group letrozole was added to gonadotropin in the antagonist protocol. The control group received the conventional antagonist protocol. The main outcome was clinical and chemical pregnancy; and the second outcomes were the number of mature oocytes, the fertilization rate, estradiol level, and the total dose of gonadotropins. Results Basic clinical and demographic features were comparable between the groups. Estradiol level on the day of human-chorionic-gonadotropin administration and the total gonadotropin consumption were significantly higher in the control group than the case group (p = 0.045). In addition, the number of MII oocytes was higher (but not significant) in the case group than the control group (p = 0.09). Moreover, the endometrial thickness was

significantly lower in the case group. There were no significant differences in fertilization rate and chemical and clinical pregnancy rates between the two groups. Conclusion Although adding letrozole to gonadotropin in normal responders reduces the total dose of gonadotropin, it does not improve the pregnancy outcomes.