Clinical Trial Protocol
Iranian Registry of Clinical Trials

18 Sep 2026

Evaluation of implantation rate and clinical pregnancy after intrauterine flushing of infertile patients with follicular fluid plus granulosa cells

Protocol summary

Study aim
The main objective of this study is evaluation of implantation rate and clinical pregnancy after flushing of uterine in infertile patients with follicular fluid plus granulosa cells in IVF/ ICSI cycles.

Design
A randomized clinical trial with control group, double blind, two arm parallel group design of 140 patients. Randomization is performed using a computer-generated random assignment schedule for each patient. Sealed and numbered envelopes are used to conceal the treatment allocation until randomization.

Settings and conduct
Female infertility Clinic of ROYAN institute.

Participants/Inclusion and exclusion criteria
- Age 20-38 years - Normal ovarian reserve - Normal Hormonal profile (FSH, LH, AMH) and normal AFC - Regular menstrual cycle - IVF / ICSI or IVF or ICSI cycles with Agonist Protocol - Existence of at least 2 oocytes in dominant follicular fluids

Intervention groups
Intervention group: Flushing of follicular fluid with granulosa cells is performed 36-34 hours after hCG injection. Non-intervention group: control Follicular fluid flushing with granulosa cells is not performed on the day of hCG injection.

Main outcome variables
Determination of implantation and clinical pregnancy rates after flushing of uterine cavity in the intervention group (with follicular fluid flushing with granulosa cells) in comparison with the control group (without follicular fluid flushing with granulosa cells)

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20080831001141N29**
Registration date: **2020-12-19, 1399/09/29**
Registration timing: **registered_while_recruiting**

Last update: **2020-12-19, 1399/09/29**
Update count: **0**

Registration date
2020-12-19, 1399/09/29

Registrant information

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Kiandokht Kiani

Name of organization / entity
Royan Institute

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Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2018-11-01, 1397/08/10

Expected recruitment end date
2022-03-21, 1401/01/01

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Evaluation of implantation rate and clinical pregnancy after intrauterine flushing of infertile patients with follicular fluid plus granulosa cells

Public title

Intrauterine Flushing With Follicular Fluid Plus Granulosa Cells

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Normal Hormonal profile (FSH, LH, AMH) and normal AFC Normal ovarian reserve Age 20-38 years Regular menstrual cycle IVF / ICSI or IVF or ICSI cycles with Agonist Protocol Existence of at least 2 oocytes in dominant follicular fluids

Exclusion criteria:

Presence of Endometriosis and Endometrioma Hydrosalpinx OHSS (Ovarian Hyper Stimulating Syndrome) Tubal factor infertility Age <38 years old Male factor infertility with azoospermia Low/Poor Response Myoma with a compression effect or submocusa myometrium Intra mural or subserouse Myoma > 5cm Presence of untreated Thyroid, Diabetic and Hepatitis diseases, vaginal infection Endometrial tuberculosis Patients with any special drug intake The follicular fluid which contains any oocyte or contaminated with blood will be discarded

Age

From **20 years** old to **38 years** old

Gender

Female

Phase

3

Groups that have been masked

- Participant
- Investigator

Sample size

Target sample size: **140**

Randomization (investigator's opinion)

Randomized

Randomization description

Consecutive sampling until the required sample size is reached. Women by Balanced Block Randomization method are randomly divided into 2 equal groups of 70 people (intervention group and control group). Block randomization method is designed by epidemiologist using STATA software version 13 and the number of blocks considered is 4. Envelopes are prepared for 140 people and inside each envelope is written the group in which the patient should be placed. The envelopes are prepared in a way that the writing inside is not clear. A nurse before the patient enters the operating room, removes the envelope and sends the patients in one of the two groups.

Blinding (investigator's opinion)

Double blinded

Blinding description

In this study, a doctor performs intrauterine flushing of follicular fluid with granulosa cells in the intervention group. COCs aspiration will be performed 34-36h after hCG injection. Clear Follicular Fluids (without blood cells) which contain COCs will be used. Therefore, in this study, it is not possible to blind the doctor. In order to blind the patients participating in this study, all conditions will be the same between the two groups (participating patients blindness). All patients in case and control groups will receive GnRH agonist protocol. Ovarian stimulation will be carried out when pituitary desensitization is achieved and is continued until the day of hCG administration. The control group would not have FF endometrial flushing. In both groups, embryo transfer will be carried out 2-3 days later. Luteal phase support will be started the day after ovum pick up by the vaginal administration of progesterone daily for 16 days and will continued for up to12 weeks if pregnancy occurred. Pregnancy was diagnosed by measurement of β-hCG level and later was confirmed by Transvaginal sonography. The researcher also reviews the results based on the received code (researcher blindness).

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

1

Registry name

مركز ثبت كارآزمائي هاي باليني ايالات متحده آمريكا (www.clinicaltrial.gov)

Secondary trial Id

NCT04077970

Registration date

2018-11-01, 1397/08/10

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Royan Institute

Street address

Royan Institute, Number 12, East Hafez Avenue, Banihashem Street, Resalat Highway

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Tehran

Province

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Postal code

148- 16635

Approval date

2017-08-15, 1396/05/24

Ethics committee reference number

IR.ACECR.ROYAN.REC.1396.135

Health conditions studied

1

Description of health condition studied

Infertile women with male factor

ICD-10 code

N97.9

ICD-10 code description

Female infertility, unspecified

Primary outcomes

1

Description

Evaluation of implantation rate

Timepoint

Only once, day 35-42 post ovum pick-up

Method of measurement

Based on the number of gestational sacs observed, divided by the number of embryos transferred

Secondary outcomes

1

Description

clinical pregnancy rate

Timepoint

Only once; 6 weeks after embryo transfer

Method of measurement

Vaginal ultrasound

Intervention groups

1

Description

Intervention group: Women will undergo intrauterine flushing with follicular fluid plus granulosa cells. COCs aspiration will be performed 34-36h after hCG injection. Clear Follicular Fluids (without blood cells) which contain COCs will be used. Follicular fluid flushing after oocyte retrieval with 2 ml of clear FF plus granulose cells will be performed by an IUI catheter.

Category

Treatment - Other

2

Description

Control group: Women will not undergo intrauterine flushing with follicular fluid plus granulosa cells.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

ROYAN Institute

Full name of responsible person

Maryam Hafezi

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

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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

ROYAN Institute

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

Other

Person responsible for general inquiries

Contact

Name of organization / entity

ROYAN Institute

Full name of responsible person

Maryam Hafezi

Position
Associate professor
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Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is 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
Not applicable
Informed Consent Form
Undecided - It is not yet known if there will be a plan to make this available
Clinical Study Report
Yes - There is a plan to make this available
Analytic Code
Not applicable
Data Dictionary
Not applicable
Title and more details about the data/document
Clinical study report (published article)
When the data will become available and for how long
After the publication of the article
To whom data/document is available
Available to the public
Under which criteria data/document could be used
Scientific use by citing the source
From where data/document is obtainable
Dr. Maryam Hafezi
What processes are involved for a request to access data/document
Request via e-mail
Comments