Clinical Trial Protocol
Iranian Registry of Clinical Trials

18 Sep 2026

The effect of oral L-arginine consumption on uterine artery resistance in women with recurrent implant failure

Protocol summary

Study aim

Determining the effect of oral L-arginine consumption on uterine artery resistance in women with recurrent implant failure

Design

The present study is a randomized clinical trial using a block randomization and double-blind method. Blocks of 4 random number tables are used to allocate individuals to two control and study groups. The sample size was calculated based on similar studies and statistical formulas and was 72 people in total and 36 people in each group.

Settings and conduct

Research environment : the infertility clinic of Fatemeh Hospital, Hamadan, the research period: 2022-2023. The research population : all infertile women who are candidates for IVF with a history of 2 implantation failures . The research sample: infertile woman who is a candidate for IVF with a history of 2 implantation failures with good quality embryo transfer and a suitable endometrium with the inclusion criteria for the study.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Infertile women aged 18-41 years, candidates for IVF with a history of 2 failures, with a suitable endometrium and good quality embryos, and without chronic diseases, non-smokers, endometriosis, without hormonal disorders, immune disorders, thrombophilia, antiphospholipid antibodies, mutations in factor V, prothrombin, chromosomal disorders. Exclusion criteria: patients with side effects of L-arginine, cancellation of the treatment cycle for any reason, unwillingness to continue participating in the study.

Intervention groups

In the intervention group of women with recurrent implant failure and receiving drugs (including: folic acid, vitamin D3, B complex and probiotic) and standard protocol (LONG with suppression) take oral L-arginine supplement from the luteal phase at a rate of 3 g Receive daily for 20 days.

Main outcome variables

Uterine artery resistance in women IVF candidates with RIF,Successful embryo transfer

General information

Reason for update

The study needs to be updated due to the addition of a series of inclusion and exclusion criteria.

Acronym

RIF(Frequent implantation (failure

IRCT registration information

IRCT registration number: **IRCT20220317054318N1**
Registration date: **2022-05-01, 1401/02/11**
Registration timing: **prospective**

Last update: **2025-01-08, 1403/10/19**
Update count: **1**

Registration date

2022-05-01, 1401/02/11

Registrant information

Name

Shamim Pilevari

Name of organization / entity

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Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-05-22, 1401/03/01

Expected recruitment end date

2023-02-20, 1401/12/01

Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
The effect of oral L-arginine consumption on uterine artery resistance in women with recurrent implant failure

Public title
The effect of oral L-arginine consumption on uterine artery resistance in women with recurrent implant failure
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Infertile women aged 18-41 years Infertile IVF candidate women with a history of failure twice Women with endometrium suitable for embryo transfer Women with good quality embryos for transfer Women who have passed 2 months or more since the last ICSI test and transfer. Women who have the opportunity to attend the follow-up according to the plan and have informed consent Women with a normal size and shape of the uterus that has been confirmed by ultrasound or hysteroscopy
Exclusion criteria:
Patients who use nitrite or organic nitrate at the same time Women with chronic diseases such as: severe liver, kidney, or cardiovascular failure, patients with a history of stroke or myocardial infarction Women smokers Women with stage 3 and 4 endometriosis Women with a known etiology of implant failure such as anatomical disorders (diagnosed by hysterosalpingography), hormonal disorders, immunological disorders, trophoblasts, antiphospholipid antibodies, mutation in factor V, pro-thrombin, crew disorders Musomes are excluded from the study Patients with side effects of L-arginine Canceling the treatment cycle for any reason Unwillingness of the person to continue participating in the study
Age
From **18 years** old to **41 years** old
Gender
Female

Phase
3
Groups that have been masked

- Participant
- Outcome assessor

Sample size
Target sample size: **72**
Randomization (investigator's opinion)
Randomized
Randomization description
For this purpose, a random block is used. 18 sheets of paper are prepared and the letter A is written on 9 sheets and the letter B is written on the other 9 sheets. The sheets are mixed together and placed in a box and placed in a drawer. And with the reference of each person eligible to enter the study, one of the sheets is randomly taken out and based on whether it is group A or B, it is given to the intervention and control group and the sheets are taken out until every 18 sheets. If it is not pulled out, it will not be returned to the drawer, and after randomly pulling out all 18 sheets, all the sheets will be returned to the drawer and the above operation will be continued up to 4 times on the next 18 patients, ie completing the sample volume to 72.
Blinding (investigator's opinion)
Double blinded
Blinding description
L-arginine and placebo are exactly the same, and a technician who is not in the research plan prepares the drugs and gives them to the doctor, and the codes remain secret until the end of the research, so the patient and the doctor measure the outcome. And the statistical consultant will not know which group these results belong to until the end of the study and after the disclosure of the codes.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics Committee of Hamadan University of Medical Sciences
Street address
Pasdaran Street
City
Hamedan
Province
Hamadan
Postal code
6517789971
Approval date
2022-04-09, 1401/01/20
Ethics committee reference number
IR.UMSHA.REC.1401.037

Health conditions studied

1

Description of health condition studied
infertility
ICD-10 code
N97.9
ICD-10 code description
Female infertility, unspecified

Primary outcomes

1

Description
Uterine vascular resistance
Timepoint
At the beginning of the intervention and after taking L-arginine
Method of measurement
Color Doppler ultrasound

Secondary outcomes

1

Description
Pregnancy
Timepoint
After taking the drug and transferring the fetus
Method of measurement
B-HCG titration test

Intervention groups

1

Description
Intervention group: In the intervention group, women with recurrent implant failure, in addition to receiving drugs (including: folic acid, vitamin D3, B complex and probiotics) and standard protocol (LONG with suppression), take Karen brand oral L-arginine supplement from the luteal phase to They receive 3 grams daily for 20 days.
Category
Treatment - Drugs

2

Description
Control group: Women with recurrent implant failure who use standard drugs (including: folic acid, vitamin D3, B complex and probiotics)
Category
Treatment - Drugs

Recruitment centers

1

Recruitment center
Name of recruitment center
Hamadan Fatemieh Hospital
Full name of responsible person
Shamim Pilehvari
Street address
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Web page address

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Hamedan University of Medical Sciences
Full name of responsible person
Reza Shokohi
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Web page address
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Hamedan 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
Hamedan University of Medical Sciences
Full name of responsible person
Shamim Pilehvari
Position
Associate professor
Latest degree
Subspecialist
Other areas of specialty/work

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Person responsible for updating data

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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