

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

30 Jul 2026

### Investigating the effect of intrauterine injection of Extracellular vesicles derived from human umbilical cord Wharton's Jelly mesenchymal stem cells in the healing process of women with intrauterine adhesions(Asherman syndrome)

#### Protocol summary

##### Study aim

Determination of the effect of intrauterine injection of extracellular vesicles derived from Wharton jelly mesenchymal stem cells of human umbilical cord in the healing process of women with intrauterine adhesions (Asherman syndrome)

##### Design

A controlled, parallel-group, double-blind, randomized, phase 2 clinical trial on 20 patients. A table of random numbers was used for randomization.

##### Settings and conduct

The study is a clinical trial type. The study is divided into two groups of patients with Asherman's syndrome referred to Valiasr Hospital in Tabriz who received treatment and the group of patients who did not receive treatment (each group is at least 20 people and there may be changes in the number of faces during the work process) take). Standards of compliance with ethical principles and receiving informed consent form will be done from all the participants of the target groups.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria: Women aged 20 to 44 Be in low to medium stages of the disease. Have no blood pressure, diabetes, cardiovascular diseases They are not in menstruation or menopause Informed consent form  
Exclusion criteria: Patients under 20 years old and over 44 years old Patients with coagulation problems. Patients who have an underlying chronic disease and have to take special drugs.

##### Intervention groups

The group treated with EVs The group receiving PBS

##### Main outcome variables

Expecting the improvement of the macroscopic conditions of the uterus in terms of adhesion, bleeding and inflammation indicators, pathological indicators including the thickness of the endometrial tissue, the

number of endometrial glands, the extent of fibrosis and the amount of endometrial angiogenesis.

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20160422027520N23**

Registration date: **2024-02-21, 1402/12/02**

Registration timing: **prospective**

Last update: **2024-02-21, 1402/12/02**

Update count: **0**

##### Registration date

2024-02-21, 1402/12/02

##### Registrant information

##### Name

Mehdi Yousefi

##### Name of organization / entity

Department of Immunology, Faculty of Medicine,  
Tabriz University of Medical Sciences, Tabriz, Iran

##### Country

Iran (Islamic Republic of)

##### Phone

+98 41 3336 4665

##### Email address

yousefime@tbzmed.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2024-04-03, 1403/01/15

##### Expected recruitment end date

2024-05-21, 1403/03/01

**Actual recruitment start date**  
empty

**Actual recruitment end date**  
empty

**Trial completion date**  
empty

**Scientific title**  
Investigating the effect of intrauterine injection of Extracellular vesicles derived from human umbilical cord Wharton's Jelly mesenchymal stem cells in the healing process of women with intrauterine adhesions(Asherman syndrome)

**Public title**  
Investigating the effect of vesicle therapy and cell therapy in intrauterine adhesions

**Purpose**  
Treatment

**Inclusion/Exclusion criteria**  
**Inclusion criteria:**  
Women aged 20 to 44 whose disease has been proven be in low to medium stages of the disease have no blood pressure, diabetes, cardiovascular diseases and other underlying problems Not during menstruation or menopause Their cycles during treatment should preferably be close to each other have filled out the informed consent form Do not have any history of immunotherapy  
**Exclusion criteria:**  
Patients under 20 years old and over 44 years old  
Patients who themselves or their spouses have abnormal karyotype or genetic and chromosomal disorders  
Patients with coagulation problems Patients who have an underlying chronic disease and have to take special drugs Patients whose HIV, HCV or HBV test results are positive Patients who have a history of asthma and allergies to certain drugs Patients with intrauterine anomalies

**Age**  
From **20 years** old to **44 years** old

**Gender**  
Female

**Phase**  
N/A

**Groups that have been masked**  

- Participant

**Sample size**  
Target sample size: **20**

**Randomization (investigator's opinion)**  
N/A

**Randomization description**

**Blinding (investigator's opinion)**  
Single blinded

**Blinding description**  
The cooperation of obstetrics and gynecology specialists, groups with Asherman syndrome who were between the ages of 20 and 44 and who visited the hospital and did not have problems such as early menopause, serious diseases such as coagulation problems, liver and kidney

diseases, and polyps, myoma, and septum. will be selected for treatment. Patients are divided into two groups. The group treated with EVs and the group receiving PBS (at least 20 people in each group) This division will be hidden from the participants

**Placebo**  
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**  
Golbad street  
**City**  
Tabriz  
**Province**  
East Azarbaijan  
**Postal code**  
516661476

**Approval date**  
2023-12-04, 1402/09/13

**Ethics committee reference number**  
IR.TBZMED.REC.1402.657

**Health conditions studied**

**1**

**Description of health condition studied**  
Asherman syndrome (intrauterine adhesions)

**ICD-10 code**  
N98.9

**ICD-10 code description**  
Complication associated with artificial fertilization, unspecified

**Primary outcomes**

**1**

**Description**  
Intrauterine adhesion rate

**Timepoint**  
Before the intervention and after the intervention

**Method of measurement**  
Initial examinations of referring patients (through history, initial ultrasound and blood sample testing) will be done. Then, the stem cells derived from Wharton's umbilical cord jelly (WJ-MSC) will be prepared and cultivated and their identity will be determined to extract extracellular

vesicles (using a separation kit or ultracentrifuge technique). Characteristics of extracellular vesicles, including determining the concentration, size and percentage of extracellular vesicles, will be obtained using BCA, DLS, electron microscope photography, and will be ready for injection after confirmation. We will evaluate the related tests using the ultrasound technique, the amount of adhesion, fibrosis, uterine thickness, uterine length and menstrual cycle according to the American Fertility Association (AFS) standards. We will examine blood leukocytes, lipid, sugar and enzyme markers. A tissue biopsy is performed and the amount of fibrosis, tissue collagen and the amount of adhesion are checked using Masson trichrome and H/E tissue staining. We will evaluate the expression level of SMA marker in the uterine endometrial tissue section using Real Time PCR technique.

## Secondary outcomes

empty

## Intervention groups

### 1

#### Description

Intervention group: the group treated with EVs and the group receiving PBS (at least 20 people in each group)

#### Category

Treatment - Other

## Recruitment centers

### 1

#### Recruitment center

##### Name of recruitment center

Valiasr International Hospital, Tabriz

##### Full name of responsible person

Shahla Danai

##### Street address

Valiasr Hospital, Zafaraniyeh street

##### City

Tabriz

##### Province

East Azarbaijan

##### Postal code

5166614766

##### Phone

+98 41 6658 1616

##### Email

danaish@gmail.com

## Sponsors / Funding sources

### 1

#### Sponsor

##### Name of organization / entity

Tabriz University of Medical Sciences

##### Full name of responsible person

Dr. Parviz Shahabi

#### Street address

Tabriz University of Medical Sciences, Daneshgah st, Tabriz

#### City

Tabriz

#### Province

East Azarbaijan

#### Postal code

5166614766

#### Phone

+98 912 670 3953

#### Email

mehdi\_yusefi@yahoo.com

#### Grant name

#### Grant code / Reference number

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

Yes

#### Title of funding source

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

Shahid Beheshti University of Medical Sciences

##### Full name of responsible person

Mirmohammadrezahosseini

##### Position

Master of Medical Immunology

##### Latest degree

Master

##### Other areas of specialty/work

Immunology

##### Street address

Department of Immunology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz

##### City

Tabriz

##### Province

Tehran

##### Postal code

1467864763

##### Phone

+98 937 597 0449

##### Email

Sayed1448@gmail.com

## Person responsible for scientific inquiries

### Contact

**Name of organization / entity**

Tabriz University of Medical Sciences

**Full name of responsible person**

Mehdi Yousefi

**Position**

Professor

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Immunology

**Street address**

Department of Immunology, Faculty of Medicine,  
Tabriz University of Medical Sciences, Tabriz

**City**

Tabriz

**Province**

East Azarbaijan

**Postal code**

5166614766

**Phone**

+98 912 670 3953

**Email**

yousefime@tbzmed.ac.ir

## Person responsible for updating data

### Contact

**Name of organization / entity**

Shahid Beheshti University of Medical Sciences

**Full name of responsible person**

Mir Mohammad Reza Hosseini

**Position**

Master of Medical Immunology

**Latest degree**

Master

**Other areas of specialty/work**

Immunology

**Street address**

Shahrake Gharb

**City**

Tehran

**Province**

Tehran

**Postal code**

1467864763

**Phone**

+98 937 597 0449

**Email**

Seyed1448@gmail.com

## 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**

No - There is not a plan to make this available

**Data Dictionary**

No - There is not a plan to make this available

**Title and more details about the data/document**

All data is potentially shareable after de-identifying individuals

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

The access period starts 6 months after the results are published

**To whom data/document is available**

Only for researchers working in academic and scientific institutions

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

Doing research in this area

**From where data/document is obtainable**

09375970449 Mir Mohammad Reza Hosseini

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

Send a request message through Iranian messengers to phone number 093759780449

**Comments**