Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 2026

Assessment of safety, efficacy and effective dose determination of human umbilical cord Wharton’s jelly mesenchymal stem cell transplantation on treatment of COVID-19 (coronavirus) pneumonia and complications in humans

Protocol summary

Study aim
The purposes of this study is to evaluate the efficacy, safety and dose determination of human umbilical cord Wharton’s jelly mesenchymal stem cell transplantation in treatment of new COVID-19 pneumonia and complications in humans. The main aims is to decrease mortality.

Design
This study is a parallel randomized controlled clinical trial study design.The sample size of the study is 90 COVID-19 patients that are assigned to intervention and control groups using simple randomization method

Settings and conduct
This study is performed to decrease the mortality and other complications of patients with COVID-19 and normalize blood Parameters and chest CT scan at Shahid Modares Hospital of Shahid Beheshty University of Medical Sciences. Approved and admitted patients in infectious and intensive care units, are followed up for up to 28 days for the intended outcome after receiving the intervention.

Participants/Inclusion and exclusion criteria
Patients with acute form of COVID-19 infection who are confirmed by RT-PCR and HRCT are included. Any confirmed pregnancy, ARDS with other reasons, active cancerous disease, hematological disorders, heart failure, viral disease, acquired or inherited immune deficiency and mental illness are excluded.

Intervention groups
Patients in the intervention group are injected with an initial dose of 0.5or2 million/ kg of MSC.This process is performed on the first,third and sixth days. This intervention is supplemented with other treatments.The control group is received standard viral treatment along with placebo(normal saline) instead of the intervention.

Main outcome variables
Death, FIO2, Interleukin profile, Pneumonia severity index, Oxygen Saturation index, Procalcitonin, C reactive protein, Lymphocyte count,CD3 +, CD4 + and CD8 + T cells count,Improved pneumonia using CT scan.

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20200421047150N1**
Registration date: **2020-05-14, 1399/02/25**
Registration timing: **registered_while_recruiting**

Last update: **2020-05-14, 1399/02/25**
Update count: **0**

Registration date
2020-05-14, 1399/02/25

Registrant information
Name
mohammad fathi
Name of organization / entity
Country
Iran (Islamic Republic of)
Phone
+98 21 2351 5366
Email address
fathi_mansor@yahoo.com

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2020-05-12, 1399/02/23

Expected recruitment end date

2020-10-16, 1399/07/25

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Assessment of safety, efficacy and effective dose determination of human umbilical cord Wharton’s jelly mesenchymal stem cell transplantation on treatment of COVID-19 (coronavirus) pneumonia and complications in humans

Public title

Stem cell treatment for COVID-19

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Patients in acute phase with Laboratory confirmation of SARS-COV-2 infection, Pneumonia confirmed by chest x-ray or Computed tomography Scan, Respiratory rate> 30 times / minute, Oxygen Saturation less than 93% , Arterial oxygen partial pressure (Pao2) /oxygen inhalation(Fio2) less than 300 mmHg No history of tumor or malignant disease

Exclusion criteria:

Pregnant patient with a positive pregnancy test or during lactation or who is planning to become pregnant during the study, The definitive history of acquired or inherited immune deficiency diseases, The definitive psychotic illness, A history of serious mental illness or a history of suicide. Creatinine greater than 1.7 mg/dL. Any active or treated Cancerous diseases. Hepatic enzymes three times normal or white blood cell count lower than 3000 per microliter and hemoglobin less than 10 g/dl. Any cardiac hemodynamic disorder. Co-infection of human immunodeficiency viruses, Hepatitis B, Hepatitis C and Human T-lymphotropic virus

Age

From **18 years** old to **85 years** old

Gender

Both

Phase

2-3

Groups that have been masked

- Participant
- Care provider
- Outcome assessor
- Data analyser

Sample size

Target sample size: **90**

Randomization (investigator's opinion)

Randomized

Randomization description

We use a randomization method to minimize the researchers' opinion to select participation in study groups to control bias. After selection, participants are assigned to the groups using a simple randomization method for received intervention and placebo in each participant. The randomization process is performed using Random Allocation software, and since this study consists of two groups, the allocation outputs of the participants are identified by A and B so the assign of each patient in each group is unpredictable to other members of the research team. We do not notify the team manager after selecting each patient and they send out each patient's intervention type based on the software output, without the known of other team members. Only the clinical care is aware of any patient's intervention in cases where the patient's condition is inappropriate.

Blinding (investigator's opinion)

Triple blinded

Blinding description

After selecting each patient to the study, the patients are selected based on the randomization output is taken from the randomization software and matching it with the patient number of the intervention in such a way that each the patients, investigators and outcome assessor do not determine the type of intervention the patients receive. Blinding in this study is triple blind. To maintain the blindness of the study the injection shape and color of the placebo are be similar to the main intervention so that patients and physicians evaluating the outcomes are blind of the participant's interventions to minimize the bias in outcome measurement.

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee in Biomedical Research of Shahid Beheshti University of Medical Science

Street address

7th Floor,, Arabi Ave, Velenjak

City

tehran

Province

Tehran

Postal code

1998734383

Approval date

2020-04-06, 1399/01/18

Ethics committee reference number

IR.SBMU.RETECH.REC.1399.031

Health conditions studied

1

Description of health condition studied
COVID-19
ICD-10 code
U07.01
ICD-10 code description
COVID-19 disease

Primary outcomes

1

Description
Death
Timepoint
Up to 28 days after starting the study
Method of measurement
Patient observation and evaluation of vital signs

Secondary outcomes

1

Description
Evaluation of Pneumonia Severity Index
Timepoint
Up to 28 days
Method of measurement
PSI

2

Description
Evaluation of oxygen supply index
Timepoint
Discharge from ICU
Method of measurement
Pulse Oximeter

3

Description
C- Reactive protein
Timepoint
28 days or until the marker is normalized
Method of measurement
Blood sample

4

Description
Procalcitonin
Timepoint
Until the marker is normalized
Method of measurement
Blood sample

5

Description
Lymphocyte count
Timepoint
Until the marker is normalized
Method of measurement
CBC

6

Description
Counting of CD3 +, CD4 + and CD8 + T cells
Timepoint
Before the first injection and after the third injection
Method of measurement
Flow cytometry

7

Description
+ CD4 + / CD8 ratio
Timepoint
Before the first injection and after the third injection
Method of measurement
Flow cytometry

8

Description
Improve pneumonia evaluated by CT scan
Timepoint
After the second and third infusions
Method of measurement
CT scan

Intervention groups

1

Description
Intervention group: In this group, umbilical cord Wharton’s jelly mesenchymal stem cells are infused at an initial dose of 0.5-2 milion/ kg. This process is performed on the first, third and sixth days. This intervention is done along with other standard treatments for this type of patients, varying in severity of COVID-19 Infectious, and in accordance with national and international guidelines.
Category
Treatment - Drugs

2

Description
Control group: This group, like the intervention group, will receive all standard medication according to national and international guidelines, depending on the severity of COVID-19. But on the first, third and sixth day, placebo (normal saline) is infused.
Category
Placebo

Recruitment centers

1

Recruitment center

Name of recruitment center
Shahid Modares hospital

Full name of responsible person
Mohamad Fathi

Street address
Floor 5, Shahid Modarres Hospital, Saadat Abad St. Yadegare Imam Highway

City
Tehran

Province
Tehran

Postal code
1998734383

Phone
+98 21 2351 5366

Fax

Email
fathi_mansor@yahoo.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity
DEY Company

Full name of responsible person
Ali Asghar Rezaei

Street address
No 12, Shahin Av., Valy-e asr St.

City
Tehran

Province
Tehran

Postal code
1434876165

Phone
+98 21 8819 2932

Fax
+98 21 8867 5112

Email
Rezaei690@gmail.com

Grant name

Grant code / Reference number

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

Title of funding source
DEY Company

Proportion provided by this source
100

Public or private sector
Private

Domestic or foreign origin
Domestic

Category of foreign source of funding
empty

Country of origin

Type of organization providing the funding
Industry

Person responsible for general inquiries

Contact

Name of organization / entity
Shahid Beheshti University of Medical Sciences

Full name of responsible person
Mohamad Fathi

Position
Associate professor

Latest degree
Subspecialist

Other areas of specialty/work
Anesthesiology and Intensive care

Street address
Shahid Modarres Hospital, Saadat Abad St.,Yadegare Imam Highway

City
Tehran

Province
Tehran

Postal code
1998734383

Phone
+98 21 2351 5366

Email
fathi_mansor@yahoo.com

Person responsible for scientific inquiries

Contact

Name of organization / entity
Shahid Beheshti University of Medical Sciences

Full name of responsible person
Mehran Lak

Position
Assistant Professor

Latest degree
Specialist

Other areas of specialty/work
Infectious and Tropical Diseases

Street address
Shahid Modarres Hospital, Saadat Abad St.,Yadegare Imam Highway

City
Tehran

Province
Tehran

Postal code
1998734383

Phone
+98 21 2351 5366

Email
Lakmehran@gmail.com

Person responsible for updating data

Contact

Name of organization / entity
Shahid Beheshti University of Medical Sciences

Full name of responsible person
Ali Asghar Rezaei

Position
Medical doctor
Latest degree
Medical doctor
Other areas of specialty/work
General Practitioner
Street address
No 12, Shahin Av. Valy-e asr St.
City
Tehran
Province
Tehran
Postal code
1434876165
Phone
+98 912 221 1462
Email
Rezaei690@gmail.com

Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is a plan to make this available
Study Protocol
No - There is not a plan to make this available
Statistical Analysis Plan
Yes - There is 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
Yes - There is 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
Title and more details about the data/document
Findings of the study, demographic data of participants in the study, in addition to descriptive and analytical analysis of variables.
When the data will become available and for how long
Availability four months after the end of study
To whom data/document is available
Emergency medicine and infectious, pulmonology, intensive care, and other specialists
Under which criteria data/document could be used
In the case of comparison with other similar trials or treatment
From where data/document is obtainable
Shahid Beheshti University of Medical Sciences
What processes are involved for a request to access data/document
By referring to the central library and clinical trial center in Iran University of Medical Sciences can access to the documents of participants, data and results
Comments