Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

Comparison of the effect of bosentan with routine protocol on clinical outcomes of hospitalized patients with COVID-19 infection.

Protocol summary

Study aim
Determining the effect of bosentan on clinical outcomes of hospitalized patients with COVID-19 infection in comparison with routine protocol

Design
Double-blind randomized controlled clinical trial

Settings and conduct
In this study, COVID-19 patients, hospitalized in Shahid Mostafa Khomeini and Imam Khomeini hospitals with the mentioned inclusion and exclusion criteria will be studied. Bosentan and placebo tablets are similar, and patients and researchers are unaware of labeling. Bosentan 62.5 mg tablets will be given twice daily. Patients are followed up daily. After discharge, they will be followed up for 30 days from the time of intervention.

Participants/Inclusion and exclusion criteria
Inclusion Criteria: • Written informed consent; Age over 18 years; Laboratory-confirmed SARS-CoV-2 infection; Exclusion Criteria: • Pregnancy; Lactation; Glibenclamide Consumption; Cyclosporine Consumption; Aminotransferases > 3 times normal; Allergy to bosentan

Intervention groups
Oral Bosentan 62.5 mg, twice daily, for 30 days.

Main outcome variables
The time to clinical improvement, defined as the time from randomization to an improvement of two points (from the status at randomization) on a WHO 11 point clinical progression scale or live discharge from the hospital, whichever came first.

General information

Reason for update
Start recruitment process

Acronym

IRCT registration information
IRCT registration number: **IRCT20211203053263N2**
Registration date: **2022-02-26, 1400/12/07**
Registration timing: **prospective**
Last update: **2022-07-19, 1401/04/28**
Update count: **2**

Registration date
2022-02-26, 1400/12/07

Registrant information

Name
Shaahin Shahbazi

Name of organization / entity

Country
Iran (Islamic Republic of)

Phone
+98 21 8821 3960

Email address
mdkabe@gmail.com

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2022-02-27, 1400/12/08

Expected recruitment end date
2022-05-29, 1401/03/08

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Comparison of the effect of bosentan with routine protocol on clinical outcomes of hospitalized patients with COVID-19 infection.

Public title
Bosentan in hospitalized patients with COVID-19 infection

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Written informed consent prior to initiation of study. Age over 18 years. Laboratory-confirmed SARS-CoV-2 infection determined by PCR less than 72 hours before randomization. Illness of any duration, and at least one of the following:Radiographic infiltrates by imaging , OR Clinical assessment (evidence of rales/crackles on exam) AND SpO2 ≤ 94% on room air, OR Requiring mechanical ventilation and/or supplemental oxygen. Women of childbearing potential must agree to use at least one primary form of contraception for the duration of the study.

Exclusion criteria:

Pregnancy or Lactation Glibenclamide Consumption Cyclosporine Consumption Aminotransferases > 3 times normal Allergy to bosentan

Age

From **18 years** old

Gender

Both

Phase

3

Groups that have been masked

- Participant
- Care provider
- Investigator
- Outcome assessor
- Data analyser

Sample size

Target sample size: **200**

Randomization (investigator's opinion)

Randomized

Randomization description

Permuted Block Randomization will be used for random allocation. The size of the blocks will randomly selected. There are 4, random blocks, each has an equal number of interventions and controls. In the 4 blocks, two allocations are considered for the intervention group and two allocations for the control group. Random Allocation Software will be used for this purpose. The concealment will be done using sequentially numbered, sealed envelopes.

Blinding (investigator's opinion)

Double blinded

Blinding description

Blinding in this study is double blind that the drug and placebo are labeled as "Group A" and "Group B". They are quite similar in appearance and the person participating in the study and the person distributing the medicine does not know about this labeling.

Placebo

Used

Assignment

Parallel

Other design features

This study is an adaptive and add on trial.

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Research Ethics Committees of Ilam University of Medical Sciences

Street address

Banghanjab Blv.

City

Ilam

Province

Ilam

Postal code

1639393939

Approval date

2022-02-21, 1400/12/02

Ethics committee reference number

IR.MEDILAM.REC.1400.220

Health conditions studied

1

Description of health condition studied

COVID-19

ICD-10 code

U07.1

ICD-10 code description

COVID-19, virus identified

Primary outcomes

1

Description

The time to clinical improvement, defined as the time from randomization to an improvement of two points (from the status at randomization) on a WHO 11 point clinical progression scale or live discharge from the hospital, whichever came first.

Timepoint

During hospitalization

Method of measurement

WHO 11 point clinical progresson scale

Secondary outcomes

1

Description

Proportion of patients in each category of the WHO 11 point clinical progression scale on day 30 after randomization

Timepoint

Day 30

Method of measurement

WHO 11 point clinical progression scale

2

Description
Duration of mechanical ventilation
Timepoint
During hospitalization
Method of measurement
Mechanical ventilation, Observation

3

Description
Duration of hospitalization in survivors
Timepoint
During intervention
Method of measurement
Observation, Medical report

4

Description
The composite of symptomatic deep venous thrombosis; pulmonary embolism; arterial thromboembolism; myocardial infarction; ischemic stroke, up to 30 days after treatment initiation
Timepoint
30 days from intervention
Method of measurement
Observation

5

Description
30 days mortality
Timepoint
30 days from intervention
Method of measurement
Observation, Medical report

6

Description
Sarcopenia
Timepoint
Change from baseline at 3-12 months
Method of measurement
EWGSOP2 criteria

7

Description
Functional status
Timepoint
Change from baseline at 3-12 months
Method of measurement
Post-Covid Functional Scale

8

Description
dyspnea
Timepoint
Change from baseline at 3-12 months
Method of measurement
MMRC dyspnea scale

9

Description
fatigability
Timepoint
Change from baseline at 3-12 months
Method of measurement
chalder fatigue scale

10

Description
Sleep disorders
Timepoint
Change from baseline at 3-12 months
Method of measurement
Pittsburgh Sleep Questionnaire

11

Description
Brain fog
Timepoint
Change from baseline at 3-12 months
Method of measurement
Visual Analog Scale

12

Description
Loss of taste and smell
Timepoint
Change from baseline at 3-12 months
Method of measurement
Visual Analog Scale

13

Description
thromboembolic events
Timepoint
Change from baseline at 3-12 months
Method of measurement
clinical and paraclinical exam

14

Description
Changes in serum level of CMP
Timepoint
Change from baseline at 3-12 months
Method of measurement
Serum measurement

15

Description
Change in Weight
Timepoint
Change from baseline at 3-12 months
Method of measurement
Weight scale

16

Description
Changes in Subject's quality of life
Timepoint
Change from baseline at 3-12 months
Method of measurement
Health Survey Questionnaire

17

Description
Assessment of sexual function
Timepoint
Change from baseline at 3-12 months
Method of measurement
questionnaire

Intervention groups

1

Description
Intervention group: The study group in addition to the drugs used in the treatment of COVID-19 (approved by the National Committee), is treated with oral Bosentan 62.5 mg twice a day for 30 days. Patients will be followed for 30 days for recovery or discharge, duration of mechanical ventilation dependency, length of hospital stay, mortality, and thromboembolic events.
Category
Treatment - Drugs

2

Description
Control group: The control group, in addition to the drugs used in the treatment of COVID-19 (approved by the National Committee), receive a placebo twice a day for 30 days. Patients will be followed for 30 days for recovery or discharge, duration of mechanical ventilation dependency, length of hospital stay, mortality, and thromboembolic events.
Category
Placebo

Recruitment centers

1

Recruitment center
Name of recruitment center
Mostafa Khomaini hospital of Ilam
Full name of responsible person
Shaahin Shahbazi
Street address
Tapeh Khargooshan St
City
Ilam
Province
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Postal code
1639393939
Phone
+98 84 3333 8228
Email
mdkabe@gmail.com
Web page address
http://mostafahospital.medilam.ac.ir

2

Recruitment center
Name of recruitment center
Imam Khomeini Hospital of Ilam
Full name of responsible person
Shaahin Shahbazi
Street address
Heidari street.
City
ilam
Province
Ilam
Postal code
6931975397
Phone
+98 84 3333 4500
Email
mdkabe@gmail.com
Web page address
http://emamhospital.medilam.ac.ir

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Ilam University of Medical Sciences
Full name of responsible person
Shaahin Shahbazi
Street address
Banghanjab Blv.
City
Ilam
Province
Ilam
Postal code
1639393939
Phone
+98 84 3333 8228
Email
mdkabe@gmail.com
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Ilam 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

Ilam University of Medical Sciences

Full name of responsible person

Ilam University of Medical Sciences

Position

Associate Professor

Latest degree

Subspecialist

Other areas of specialty/work

Internal Medicine

Street address

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Phone

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Email

mdkabe@gmail.com

Person responsible for scientific inquiries

Contact

Name of organization / entity

Ilam University of Medical Sciences

Full name of responsible person

Shaahin Shahbazi

Position

Associate Professor

Latest degree

Subspecialist

Other areas of specialty/work

Internal Medicine

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Person responsible for updating data

Contact

Name of organization / entity

Ilam University of Medical Sciences

Full name of responsible person

Shaahin Shahbazi

Position

Associate Professor

Latest degree

Subspecialist

Other areas of specialty/work

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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