Clinical Trial Protocol
Iranian Registry of Clinical Trials

23 Feb 2026

The effect of methylene blue on acute respiratory distress syndrome in Covid-19 disease

Protocol summary

Study aim

Evaluation of methylene blue administration on mortality of patients with acute respiratory distress syndrome caused by Covid disease 19

Design

A randomized, phase 3, clinical trial with parallel groups and without blinding is performed on 130 patients. Simple randomization is done using online websites so that each block contains 6 patients.

Settings and conduct

Patients admitted to Imam Reza Hospital in Mashhad are enrolled to the study after obtaining informed consent, considering the inclusion and exclusion criteria. These patients are randomly divided into intervention and control groups. Finally, one-month mortality is compared between the two groups.

Participants/Inclusion and exclusion criteria

1- The patient has received remdesivir and corticosteroids and antibiotics and anticoagulants 2- At least one day and at most 5 days have passed since the patient's hospitalization. 3- O2 saturation for 10 minutes without oxygen is less than 89 and more than 75 4- Age between 18 to 75 year 5- Does not have a history of G6PD Deficiency 6- Absence of chronic renal failure with GFR <30 7- Absence of heart failure with EF<40% 8- Does not have COPD with CO2>45 9- The patient is not intubated 10- Does not have systolic Blood Pressure <90 11- Do not take SSRI, MAO Inhibitor drugs 12- Has not received plasma therapy, IVIG, hemoperfusion, Tocilizumab and plasmapheresis before administration of methylene blue 13- Does not be pregnant 14- The patient should be conscious

Intervention groups

Patients who are treated with methylene blue in addition to remdesivir, anticoagulants, corticosteroids, and antibiotics form the intervention group. In the control group, patients are treated only with remdesivir, anticoagulants, corticosteroids and antibiotics.

Main outcome variables

One-month mortality rate

General information

Reason for update

The sample size reduction from 87 to 65 participants in each group was done after the approval of the ethics committee of the university.

Acronym

IRCT registration information

IRCT registration number: **IRCT20200409047007N2**
Registration date: **2021-11-29, 1400/09/08**
Registration timing: **registered_while_recruiting**

Last update: **2023-10-15, 1402/07/23**
Update count: **1**

Registration date

2021-11-29, 1400/09/08

Registrant information

Name

Mohsen Seddigh-Shamsi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 51 3859 8818

Email address

seddighshamsim@mums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-09-16, 1400/06/25

Expected recruitment end date

2022-03-16, 1400/12/25

Actual recruitment start date

empty

Actual recruitment end date
empty
Trial completion date
empty

Scientific title
The effect of methylene blue on acute respiratory distress syndrome in Covid-19 disease

Public title
The effect of methylene blue on acute respiratory distress syndrome in Covid-19 disease
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
The patient has received remdesivir and corticosteroids and antibiotics and anticoagulants At least one day and at most 5 days have passed since the patient's hospitalization. O2 saturation for 10 minutes without oxygen is less than 89 and more than 75 Age between 18 to 75 year Does not have a history of G6PD Deficiency Absence of chronic renal failure with GFR <30 Absence of heart failure with EF<40% Does not have COPD with CO2>45 The patient is not intubated Does not have systolic Blood Pressure <90 Do not take SSRI, MAO Inhibitor drugs Has not received plasma therapy, IVIG, hemoperfusion, Tocilizumab and plasmapheresis before administration of methylene blue Does not be pregnant The patient should be conscious
Exclusion criteria:
Patient dissatisfaction History of allergy or gastrointestinal intolerance to methylene blue
Age
From **18 years** old to **75 years** old
Gender
Both

Phase
3
Groups that have been masked
No information
Sample size
Target sample size: **130**
Randomization (investigator's opinion)
Randomized
Randomization description
Simple randomization is done using online websites so that each block contains 6 patients. The generated sequence will be placed in sealed, opaque and numbered envelopes.
Blinding (investigator's opinion)
Not blinded
Blinding description
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics Committee of Mashhad University of Medical Sciences
Street address
Department of Internal Medicine, Imam Reza Hospital, Shariati Square
City
Mashhad
Province
Razavi Khorasan
Postal code
۹۱۳۷۹۱۳۳۱۶
Approval date
2021-09-14, 1400/06/23
Ethics committee reference number
IR.MUMS.REC.1400.171

Health conditions studied

1

Description of health condition studied
COVID 19 Disease
ICD-10 code
B34.2
ICD-10 code description
Coronavirus infection, unspecified

Primary outcomes

1

Description
mortality
Timepoint
One month after entering the study
Method of measurement
Patient death

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Patients in this group receive methylene blue in addition to conventional therapies (corticosteroids, anticoagulants, remdesivir, and antibiotics). Methylene blue is given to the patient in the form of a sachet to be dissolved in a glass of lukewarm water and drunk after one hour. The drug is prescribed every 8 hours on the first and second day and every 12 hours from the third day until discharge.
Category

Treatment - Drugs

2

Description
Control group: Patients in this group receive only conventional therapies, including oxygen, corticosteroids, anticoagulants, Remdesivir and antibiotics.
Category
Treatment - Drugs

Recruitment centers

1

Recruitment center
Name of recruitment center
Imam Reza Hospital
Full name of responsible person
Dr Mohsen Seddigh-Shamsi
Street address
Department of Internal Medicine, Imam Reza Hospital, Shariati Square
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Mashhad University of Medical Sciences
Full name of responsible person
Dr Majid Ghayour Mobarhan
Street address
Deputy of Research and Technology, Central University Building, next to Hoveyzeh Cinema, University Street.
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Postal code
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+98 51 3841 1538
Email
GhayourM@mums.ac.ir
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Mashhad 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
Mashhad University of Medical Sciences
Full name of responsible person
Dr Zahra-Sadat Sanei
Position
Resident of Internal Medicine
Latest degree
Medical doctor
Other areas of specialty/work
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Person responsible for scientific inquiries

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Position
Associate professor
Latest degree
Subspecialist
Other areas of specialty/work
Hematology Oncology
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Person responsible for updating data

Contact

Name of organization / entity

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Position

Associate professor

Latest degree

Subspecialist

Other areas of specialty/work

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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

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

After collecting and analyzing the data, the results will be made available to the public in the form of articles.

When the data will become available and for how long

After the publication of the article

To whom data/document is available

physicians

Under which criteria data/document could be used

There are no restrictions

From where data/document is obtainable

Dr Mohsen Seddigh Shamsi, Mashhad University of Medical Science

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

Refer to the project supervisor

Comments