Clinical Trial Protocol
Iranian Registry of Clinical Trials

23 Feb 2026

Comparison of the efficacy and safety of Atazanavir/Ritonavir plus Hydroxychloroquine regimen with Lopinavir/Ritonavir plus Hydroxychloroquine regimen in patients with moderate COVID-19, A randomized, double-blind study

Protocol summary

Study aim

Comparison of the efficacy and safety of Atazanavir/Ritonavir +HCQ with Lopinavir/Ritonavir +HCQ in patients with moderate COVID-19

Design

A randomized, double-blind, parallel phase 3 clinical trial is conducted on 128 patients with moderate COVID-19. Sealed envelope online software was used to randomize the allocation of treatment to the two intervention arms.

Settings and conduct

Patients dyspnea and O2Sat less than 94% with possibly lung CT scan evidence of moderate COVID-19 pneumonia (Involvement of a maximum of 3 or 4 lung lobes with an area less than 1/3 size of each lobe or involvement of 1or 2 lobes with more involvement) and refer to Razi Hospital in Ghaemshahr in the 2020 epidemic, will be enrolled in the study. Researcher and final assessor are blind to the type of intervention and the allocation of treatment is under the supervision of a physician.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Signing a written consent form; Age 18-75 years; Moderate COVID-19 Exclusion criteria: History of hospitalization due to COVID-19; Participate in any other clinical trial of COVID-19 treatment; Patients under mechanical ventilation at baseline; Sensitivity to atazanavir; Active cancer; Immune system compromised; Abnormal baseline ECG; Pregnancy and lactation; Renal failure; Severe liver failure; multi-organ failure; Concomitant use of CYP3A4 inducers

Intervention groups

In group A, 400 mg of hydroxychloroquine on the first day and Kaletra 2 tablets every 12 hours for 5 days, and in group B, hydroxychloroquine 400 mg single dose on the first day and atazanavir/ritonavir daily were administered for at least 5 days.

Main outcome variables

Primary Outcome: Recovery within 10 days of starting treatment Secondary outcomes: Improvement within 14 days after starting treatment; Survival rate; Number of days hospitalized; Number of days of intubated; Number of days in the ICU

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200328046886N2**
Registration date: **2020-10-12, 1399/07/21**
Registration timing: **registered_while_recruiting**

Last update: **2020-10-12, 1399/07/21**
Update count: **0**

Registration date

2020-10-12, 1399/07/21

Registrant information

Name

Hamideh Abbaspour

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 11 4203 1035

Email address

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-08-22, 1399/06/01

Expected recruitment end date
2020-11-21, 1399/09/01
Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Comparison of the efficacy and safety of Atazanavir/Ritonavir plus Hydroxychloroquine regimen with Lopinavir/Ritonavir plus Hydroxychloroquine regimen in patients with moderate COVID-19, A randomized, double-blind study

Public title
Evaluation of the efficacy and safety of Atazanavir/Ritonavir plus Hydroxychloroquine regimen in patients with moderate COVID-19
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Getting out the informed consent form from all of the patients or their guardian Aged between 18 to 75 Having one of the following symptoms: Dry cough, Severe weakness or fatigue, Dyspnea, Feeling of pain and pressure on the chest, With or without fever greater than 38° C Days from onset of the symptoms equal or less than 7 Definitive diagnosis of moderate COVID-19 based on involvement of up to 3 or 4 pulmonary lobes with an area less than one-third the volume of each lobe or involvement of one or two lobes with a larger area on CT scan O2Sat<94% It is necessary to have all items 1 to 4 and at least one of items 5 and 6
Exclusion criteria:
History of hospitalization because of COVID-19 Participate in any other clinical trial for the treatment of COVID-19 Patients under mechanical ventilation at the baseline Bradycardia Sensitivity to Atazanavir Active cancer Immune deficiency or immune compromised Baseline abnormal ECG Pregnancy and lactation Renal impairment (CLcr<50 mL/min) Severe hepatic impairment (Child-pough C) Multi organ failure Concomitant use of rifampin, carbamazepine, phenytoin
Age
From **18 years** old to **75 years** old
Gender
Both

Phase
3
Groups that have been masked

- Participant
- Investigator
- Outcome assessor

Sample size
Target sample size: **120**
Randomization (investigator's opinion)
Randomized
Randomization description
Before randomization, the effect of confounding factors on the two treatment arms was adjusted. Sealed envelope online software was used to randomize the treatment assignment to the two treatment arms A and B (Keltra/ hydroxychloroquine diet and atazanavir/ritonavir/ hydroxychloroquine diet, respectively) and thus 120 patients were divided into 30 quadri blocks.
Blinding (investigator's opinion)
Double blinded
Blinding description
To eliminate Confounding by indication as well as Confounding by severity, the investigator (clinical pharmacy assistant) and patients will be blind to the type of treatment. The treatment will be assigned in accordance with the above block randomization under the supervision of a physician.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Research Ethics Committee of Mazandaran University of Medical Sciences
Street address
Imam Square, Joybar Three Ways, the beginning of Valiasr Highway, the headquarters of Mazandaran University of Medical Sciences
City
Sari
Province
Mazandaran
Postal code
۴۸۱۵۷۳۳۹۷۱
Approval date
2020-08-12, 1399/05/22
Ethics committee reference number
IR.MAZUMS.REC.1399.602

Health conditions studied

1

Description of health condition studied
Effectiveness and safety of Atazanavir in COVID-19
ICD-10 code
U07.1 COVI
ICD-10 code description
Virus Identified

Primary outcomes

1

Description
Recovery within 10 days of starting medication
Timepoint
daily during 10 days from the beginning of intervention
Method of measurement
Measurement of O2 saturation% by pulse oximeter and clinical signs under the supervision of the physician including (no fever - no dyspnea - no cough or improvement compared to baseline - no fatigue or improvement compared to baseline - oral intake for at least 24 hours)

Secondary outcomes

1

Description
survival rate
Timepoint
daily
Method of measurement
By a designed checklist

2

Description
Recovery within 14 days after starting medication
Timepoint
daily until the day 14 after beginning of intervention
Method of measurement
Measurement of O2 saturation% by pulse oximeter and clinical signs under the supervision of the physician including (no fever - no dyspnea - no cough or improvement compared to baseline - no fatigue or improvement compared to baseline - oral intake for at least 24 hours)

3

Description
Number of days hospitalized
Timepoint
daily
Method of measurement
By a designed checklist

4

Description
number of days in ICU
Timepoint
daily
Method of measurement
By a designed checklist

5

Description
number of days intubated
Timepoint
daily
Method of measurement
By a designed checklist

Intervention groups

1

Description
Intervention group: Hydroxychloroquine 400 mg single dose on the first day with atazanavir/ritonavir 100/300 mg daily (2 serving which one contains placebo) for at least 5 days is administered. Atazanavir Considerations: If the patient is receiving PPIs, an interval of at least 12 hours after PPIs and at least 2 hours after H2 blocker should be considered. Take the medicine after or with a meal. Drug interactions with atazanavir including the concomitant use of statins, CYP3A4 inducers, or inhibitors should be considered to dose adjustment.
Category
Treatment - Drugs

2

Description
Intervention group: Hydroxychloroquine 400 mg single dose on the first day with Kaletra (Lopinavir/Ritonavir) (50/200) 2 tablets every 12 hours for at least 5 days is administered.
Category
Treatment - Drugs

Recruitment centers

1

Recruitment center
Name of recruitment center
Razi hospital
Full name of responsible person
Hamideh Abbaspour kasgari
Street address
Yusef Reza Ave.
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Web page address
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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Mazandaran University of Medical Sciences

Full name of responsible person
Research and technology department

Street address
Imam Square, Joybar Three Ways, the beginning of Valiasr Highway, the headquarters of Mazandaran University of Medical Sciences

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Province
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4815733971

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publicrel@mazums.ac.ir

Grant name

Grant code / Reference number

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

Title of funding source
Mazandaran 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
Mazandaran University of Medical Sciences

Full name of responsible person
Hamideh Abbaspour Kasgari

Position
Associate professor

Latest degree
Specialist

Other areas of specialty/work
Medical Pharmacy

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Faculty of pharmacy, Payambar Azam academic complex, 18 km of Khazar Abad Ave, Sari

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Position
Associate professor

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Person responsible for updating data

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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
Yes - There is a plan to make this available
Clinical Study Report
Yes - There is a plan to make this available
Analytic Code
Yes - There is a plan to make this available
Data Dictionary
Yes - There is a plan to make this available

Title and more details about the data/document
All collected deidentified IPD
When the data will become available and for how long
Starting 1 month after publication
To whom data/document is available
Researchers working in academic and scientific institutions
Under which criteria data/document could be used
In situations which the researchers have expressed their willing
From where data/document is obtainable
Email address
What processes are involved for a request to access data/document
In a short time after request, will be available with email
Comments