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Trials

LETTER Open Access

Evaluation of the efficacy and safety of favipiravir and interferon compared to lopinavir/ritonavir and interferon in moderately ill patients with COVID-19: a structured summary of a study protocol for a randomized controlled trial

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Abstract

Objectives: We will evaluate the efficacy and safety of favipiravir and interferon beta-1a compared to lopinavir/ritonavir and interferon beta-1a in patients with confirmed COVID-19, who are moderately ill.

Trial design: This is a phase 3, single-center, randomized, open-label, controlled trial with a parallel-group design carried out at Shahid Mohammadi Hospital, Bandar Abbas, Iran.

Participants: All patients with age ≥ 20 years admitted at the Severe Acute Respiratory Syndrome Departments of the Shahid Mohammadi Hospital, Bandar Abbas, Iran, will be screened for the following criteria.
Inclusion criteria:

1. Confirmed diagnosis of infection with SARS-CoV-2 using polymerase chain reaction and/or antibody tests.
2. Moderate COVID-19 pneumonia (via computed tomography and/or X-ray imaging), requiring hospitalization.
3. Hospitalized ≤ 48 h.
4. Signing informed consent and willingness of the participant to accept randomization to any assigned treatment arm.

Exclusion criteria:

1. Underlying conditions, including chronic hepatitis, cirrhosis, cholestatic liver diseases, cholecystitis, peptic

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ulcers, acute and chronic renal failure, and peptic ulcers.
2. Severe and critical COVID-19 pneumonia.
3. History of allergy to favipiravir, lopinavir/ritonavir, and interferon beta-1a.
4. Pregnancy and breastfeeding.

Intervention and comparator: *Intervention group*: favipiravir (Zhejiang Hisun, China) with interferon beta-1a (CinnaGen, Iran). This group will receive 1600 mg favipiravir twice a day for the first day and 600 mg twice a day for the following 4 days with five doses of 44 mcg interferon beta-1a every other day.
Control group: lopinavir/ritonavir (Heterd Company, India) with interferon beta-1a (CinnaGen, Iran). This group will receive 200/50 mg lopinavir/ritonavir twice a day for 7 days with five doses of 44 mcg interferon beta-1a every other day.
Other supportive and routine care will be the same in both groups.

Main outcomes: The primary outcome of the trial is the viral load of SARS-CoV-2 in the nasopharyngeal samples assessed by RT-PCR after 7 days of randomization as well as clinical improvement of fever and O_2 saturation within 7 days of randomization.
The secondary outcomes are the length of hospital stay and the incidence of serious adverse drug reactions within 7 days of randomization.

Randomization: Eligible patients will be allocated to one of the study arms using block randomization in a 1:1 ratio (each block consists of 10 patients). A web-based system will be used to generate random numbers for the allocation sequence. Each number relates to one of the study arms.

Blinding (masking): This is an open-label trial without blinding and placebo control.

Numbers to be randomized (sample size): A total of 60 patients will be randomized into two groups (30 patients in the intervention group and 30 patients in the control group).

Trial status: The trial protocol is version 1.0, 22 July 2020. Recruitment began on 25 July 2020 and is anticipated to be completed by 25 September 2020.

Trial registration: Iranian Registry of Clinical Trials (IRCT) IRCT20200506047323N3. Registered on 22 July 2020.

Full protocol: The full protocol is attached as an additional file, accessible from the *Trials* website (Additional file 1). In the interest in expediting the dissemination of this material, the familiar formatting has been eliminated; this letter serves as a summary of the key elements of the full protocol.

Keywords: COVID-19, Randomized controlled trial, Protocol, Favipiravir, Lopinavir/ritonavir, Interferon

Supplementary information

Supplementary information accompanies this paper at https://doi.org/10.1186/s13063-020-04747-8.

Additional file 1. Full Study Protocol.

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Authors' contributions

Study design and protocol development: MH and MF. Subject recruitment and follow-up: MH and AB. Data analysis: SH. Manuscript preparation: MH, AB, SH, and MF. Manuscript review and submission: MH, AB, and MF. The authors read and approved the final manuscript.

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Availability of data and materials

The corresponding author has access to the final trial information, and the data will be available on reasonable request (contact: M.fathalipour@hums.ac.ir).

Ethics approval and consent to participate

The RCT protocol was approved by the Ethics Committee of Hormozgan University of Medical Sciences (Ethics Committee reference number: IR.HUMS.REC.1399.225) on 21 July 2020. The investigators declare the trial has received ethical approval from the appropriate ethical committee, as described above. All participants freely signed informed consent before randomization.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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