Clinical Trial Protocol
Iranian Registry of Clinical Trials

13 Nov 2026

Investigating the efficacy and safety of N-Acetyl Cysteine (NAC) inhalation spray in controlling the symptoms of patients with COVID-19

Protocol summary

Study aim
Investigating the efficacy and safety of N-acetyl-cysteine (NAC) inhalation spray in controlling the symptoms of patients with COVID-19

Design
This study is a single-center, prospective, randomized, open-labeled, controlled, parallel phase 3 clinical trial.

Settings and conduct
Patients who is admitted to Baqiyatallah hospital, and is meet the inclusion criteria, is entered to the study are randomly assigned into two groups of intervention and control.

Participants/Inclusion and exclusion criteria
Inclusion criteria: Age: equal or more than 18 years; The patient have written consciously and freely consent to participate in the study; The patient's clinical symptoms (dry cough, shortness of breath, fever) confirm COVID-19; Confirmed diagnosis of COVID-19, with either lung CT-Scan result, which is typical for COVID-19 pulmonary involvement,or RT-PCR confirmation; Less than 7 days have passed since the onset of symptoms; Exclusion criteria: history of allergy to ingredients; The patient is in another clinical trial at the same time; The patient needs to receive medical care from the intensive care unit; Pregnancy; Lactation

Intervention groups
Intervention group: NAC nasal spray (200 microgram/puff) 1 puff 12 hours, for 7 days (In addition to routine treatment according to the latest national guideline for the treatment of new corona-virus). Control group: routine treatment according to the latest national guideline for the treatment of new corona-virus.

Main outcome variables
Clinical symptoms changes (dry cough, respiratory distress, fever)

General information

Reason for update
The study is complete.

Acronym

IRCT registration information
IRCT registration number: **IRCT20080901001165N55**
Registration date: **2020-05-23, 1399/03/03**
Registration timing: **registered_while_recruiting**

Last update: **2022-04-15, 1401/01/26**
Update count: **1**

Registration date
2020-05-23, 1399/03/03

Registrant information

Name
Yunes Panahi

Name of organization / entity
Baqiyatallah University of Medical Sciences

Country
Iran (Islamic Republic of)

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+98 21 8821 1524

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2020-05-13, 1399/02/24

Expected recruitment end date
2020-08-14, 1399/05/24

Actual recruitment start date
2020-05-14, 1399/02/25

Actual recruitment end date
2020-08-15, 1399/05/25

Trial completion date
2020-08-31, 1399/06/10

Scientific title
Investigating the efficacy and safety of N-Acetyl Cysteine

(NAC) inhalation spray in controlling the symptoms of patients with COVID-19

Public title
Investigating the efficacy and safety of N-Acetyl Cysteine (NAC) inhalation spray in controlling the symptoms of patients with COVID-19

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Age: equal or more than 18 years; The patient have written consciously and freely consent to participate in the study; The patient's clinical symptoms (dry cough, shortness of breath, fever) confirm COVID-19. Confirmed diagnosis of COVID-19, with either lung CT-Scan result, which is typical for COVID-19 pulmonary involvement,or RT-PCR confirmation. Less than 7 days have passed since the onset of symptoms.

Exclusion criteria:
History of allergy to this nasal spray ingredients; The patient is in another clinical trial at the same time; The patient needs to receive medical care from the intensive care unit; Pregnancy; Lactation.

Age
From **18 years** old

Gender
Both

Phase
3

Groups that have been masked
No information

Sample size
Target sample size: **250**
Actual sample size reached: **250**

Randomization (investigator's opinion)
Randomized

Randomization description
Block Randomization method is used to randomized the patients. In this method, the number of people assigned to each group is usually almost equal. Blocks are formed based on the considered variables and within each block, half of the people are involved and half are considered as witnesses. The main goal in this method is to balance the number of participants in each group.

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 Baqiyatallah University of Medical Science

Street address
Baqiyatallah University of Medical Science, south Sheikh-Bahaei St., Mollasadra St., Vanak Sq., Tehran, Iran

City
Tehran

Province
Tehran

Postal code
1435916471

Approval date
2020-05-02, 1399/02/13

Ethics committee reference number
IR.BMSU.REC.1399.123

Health conditions studied

1

Description of health condition studied
COVID-19

ICD-10 code
U07.1

ICD-10 code description
Covid-19

Primary outcomes

1

Description
Clinical symptoms (dry cough)

Timepoint
Daily monitoring, but the result of baseline (before the initiation of intervention), and day 7 from the initiation, is recorded.

Method of measurement
Physical examination,questionnaire

2

Description
Clinical symptoms (respiratory distress)

Timepoint
Daily monitoring, but the result of baseline (before the initiation of intervention), and day 7 from the initiation, is recorded.

Method of measurement
Pulse-oxymetery device

3

Description
Clinical symptoms (fever)

Timepoint
Daily monitoring, but the result of baseline (before the initiation of intervention), and day 7 from the initiation, is

recorded.

Method of measurement

Thermometer

Secondary outcomes

1

Description

Lab. tests changes

Timepoint

Daily monitoring, but the before the intervention initiation (baseline) and day 7 results will recorded on designed checklist.

Method of measurement

Blood sample, laboratory analysis

2

Description

Side effects

Timepoint

Daily monitoring, but the before the intervention initiation (baseline) and day 7 results will recorded on designed checklist.

Method of measurement

Physical examination

Intervention groups

1

Description

Intervention group: NAC inhalation spray (200 microgram NAC/puff) 1 puff every 12 hours, for 7 days (In addition to routine treatment according to the latest national guideline for the treatment of new corona-virus)

Category

Treatment - Drugs

2

Description

Control group: Routine treatment according to the latest national guideline for the treatment of new corona-virus.

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

Baqiyatallah hospital

Full name of responsible person

Mostafa Ghanei

Street address

Baqiyatallah hospital, Mollasadra St., Vanak Sq., Tehran, Iran.

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Bagheiat-allah University of Medical Sciences

Full name of responsible person

Gholamhosein Alishiri

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Grant name

Grant code / Reference number

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

Yes

Title of funding source

Bagheiat-allah University of Medical Sciences

Proportion provided by this source

80

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

2

Sponsor

Name of organization / entity

Sina Darou Laboratories Company

Full name of responsible person

Dr. Rezaeiyan

Street address

Sina Darou Laboratories Company, Shahid Gomnam St., 52th Boulevard, 15th km of Karaj special road

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1388167311
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Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
No
Title of funding source
Baqiyatallah University of Medical Science
Proportion provided by this source
20
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
Tehran University of Medical Sciences
Full name of responsible person
Parisa Kianpour
Position
Specialist
Latest degree
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Person responsible for updating data

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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