# Clinical Trial Protocol
# Iranian Registry of Clinical Trials

13 Jun 2026

## Comparison effects of Itraconazole and Prednisone on Fibroblast Growth Factor 2 gene expression, clinical manifestation and other tests in patients with persistent severe asthma

## Protocol summary

**Study aim**

Comparison effects of Itraconazole and Prednisone on Fibroblast Growth Factor 2 gene expression, clinical manifestation and other tests in patients with persistent severe asthma

**Design**

Interventional clinical trial in 2 - 3 phase with control group, design of 70 patients as a sample group, parallel groups, double blind, using permuted block randomization by STATA software and concealed in numbered drug containers.

**Settings and conduct**

In pulmonary private office after filling questionnaire including asking about clinical manifestation and asthma control test, spirometry respiratory test, analyzing lung ct scan and rule out of other diseases, counting blood cells and being in definition of severe asthma as well, 70 randomized patients will participate in study after taking phlegm smear in two itraconazole and prednisone groups then after 32 weeks all tests will take again, blinding by numbered uniform drug containers that is not assignable for patients and office staff.

**Participants/Inclusion and exclusion criteria**

Inclusion criteria: age older than 18 years old; no response to high dose inhaled corticosteroids and long acting beta agonist with antileukotriene; forced expiratory volume in one second less than 80 percent with fungal sensitization. Exclusion criteria: drug interaction or sensitivity to Itraconazole; pregnancy or breastfeeding periods; interstitial disease like vasculitis or churg strauss; severe heart disease; being smoker.

**Intervention groups**

In experimental group Itraconazole capsule 100 mg twice a day and in control group prednisone capsule 5mg twice a day with uniform containers and lable

**Main outcome variables**

Wheezing; decreasing Fgf2 expression; reducing the number of eosinophils and neutrophils in sputum; increasing spirometric parameters; decreased expiratory nitric oxide; increased bronchial diameter on CT scan

## General information

**Reason for update**

**Acronym**

**IRCT registration information**

IRCT registration number: **IRCT20181225042116N1**
Registration date: **2020-12-18, 1399/09/28**
Registration timing: **prospective**

Last update: **2020-12-18, 1399/09/28**
Update count: **0**

**Registration date**

2020-12-18, 1399/09/28

**Registrant information**

**Name**

Mahsa Manafi Varkiani

**Name of organization / entity**

**Country**

Iran (Islamic Republic of)

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+98 51 3605 5216

**Email address**

mahsafall_2005@yahoo.com

**Recruitment status**

**Recruitment complete**

**Funding source**

**Expected recruitment start date**

2020-12-21, 1399/10/01

**Expected recruitment end date**

2021-09-22, 1400/06/31

**Actual recruitment start date**

empty

**Actual recruitment end date**
empty
**Trial completion date**
empty

**Scientific title**
Comparison effects of Itraconazole and Prednisone on Fibroblast Growth Factor 2 gene expression, clinical manifestation and other tests in patients with persistent severe asthma

**Public title**
Comparison effects of Itraconazole and Prednisone in patients with persistent severe asthma
**Purpose**
Treatment
**Inclusion/Exclusion criteria**
**Inclusion criteria:**
Age older than 18 years old No response to high dose inhaled corticosteroids and long acting beta agonist with antileukotriene Forced expiratory volume in one second less than 80 percent Fungal sensitization
**Exclusion criteria:**
Sensitivity and drug interaction with Itraconazole History of taking Itraconazole Gastroesophageal reflux disease Known and untreated Severe heart disease Known liver and kidney disease Chronic eosinophilic pneumonia Charge Strauss syndrome Chronic Obstructive Pulmonary Disease Total IgE more than 1000IU/ml Pregnancy or breastfeeding Lack of access to Appropriate RNA in patient sputum sample Sarcoidosis Hypersensitivity pneumonitis Impaired vocal cords Filarisis Central airway obstruction Sleep apnea
**Age**
From **18 years** old
**Gender**
Both

**Phase**
2-3
**Groups that have been masked**

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

**Sample size**
Target sample size: **70**
**Randomization (investigator's opinion)**
Randomized
**Randomization description**
Assignment of individuals to study groups is a block randomization method using 7 blocks of 10; This is done with stata software version 16, this software generates random groups, each block has 5 people in the intervention group and 5 people in the control group, whose order is also random and the numbers assigned to each person are different then labeled onto medicine boxes that have the same shape , and all ten drugs that belong to a block are placed in a separate package, and one is randomly picked and given to the patient.
**Blinding (investigator's opinion)**
Double blinded
**Blinding description**
All drugs, both prednisone and itraconazole, have been purchased from the pharmaceutical company in the form of a pure white substance. Then, the drugs are filled in capsules of the same size and color with the cooperation of Mashhad School of Pharmacy; medicine cans are packed in the same shape with the same drug label, random numbers are pasted on them and placed in packs of 10 that are already divided into blocks, then these packages are transferred to a specialized asthma clinic.then nurse is given a can of medicine to the patient after the doctor's examination and being included in the criteria for studying.At the end of each course of the drug, the same can of medicine with the previous code is given again until the end of the study. Also, the person entering the information in Excel enters all the patient information only according to the code on the medicine. During the study, none of the people are aware of the type of medicine used. At the end of the study, the person who had no role in the study is asked to Assign 1 and 2 to the table of random numbers for each drug that can be analyzed for statistics without knowing the drug.
**Placebo**
Not used
**Assignment**
Parallel
**Other design features**

## Secondary Ids

empty

## Ethics committees

**1**

**Ethics committee**
**Name of ethics committee**
Ethics committee of Central Organization of Islamic Azad University
**Street address**
Bazarche Sarab Ave.,Imam Khomeini Blvd,
**City**
Mashhad
**Province**
Razavi Khorasan
**Postal code**
9133745938
**Approval date**
2020-08-05, 1399/05/15
**Ethics committee reference number**
IR.IAU.MSHD.REC.1399.088

## Health conditions studied

**1**

**Description of health condition studied**
Asthma
**ICD-10 code**
J45.5

**ICD-10 code description**
Severe persistent asthma

## Primary outcomes

### 1

**Description**
Fibroblast growth factor2 gene expression measurement
**Timepoint**
Measuring fibroblast growth factor 2 gene expression before intervention and 8 months after taking Itraconazole drug or prednisone
**Method of measurement**
Real time Polymerase Chain Reaction

### 2

**Description**
Number of sputum eosinophils and neutrophils
**Timepoint**
Before intervention and 8 months after treatment
**Method of measurement**
Preparation of thin smear after sputum centrifugation with DDT 0.01%, and staining with hematoxin and eosin and counting with light microscope

### 3

**Description**
Bronchial size changes include bronchial thickness, internal lumen, external lumen, wall area percentage
**Timepoint**
Before intervention and 8 months after treatment
**Method of measurement**
Chest High-resolution computed tomography

### 4

**Description**
Spirometric parameters include FEV1, FVC, Fef25-75
**Timepoint**
Before intervention and 8 months after treatment
**Method of measurement**
Spirometer device

## Secondary outcomes

### 1

**Description**
Measurement of fractional nitric oxide concentration in exhaled breath
**Timepoint**
Before the intervention and after 8 months of treatment
**Method of measurement**
Bedfont NO breath device for Measuring nitric oxide

### 2

**Description**
Asthma Symptom Questionnaire
**Timepoint**
Before the intervention and after 8 months of treatment
**Method of measurement**
Asthma control questionnaire (ACQ)

### 3

**Description**
Clinical symptoms of patients include wheezing
**Timepoint**
Before the intervention and after 2 weeks, then every month until the end of the treatment period
**Method of measurement**
According to the examination by stethoscope

## Intervention groups

### 1

**Description**
The first intervention group: Itraconazole capsules 100 mg twice a day for 8 months Tehran Daru company
**Category**
Treatment - Drugs

### 2

**Description**
Control group: prednisone tablets 5 mg twice a day for 8 months Iran Hormone company
**Category**
Treatment - Drugs

## Recruitment centers

### 1

**Recruitment center**
**Name of recruitment center**
Private lung office
**Full name of responsible person**
Mahsa Manafi Varkiani
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## Sponsors / Funding sources

### 1

**Sponsor**
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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**
Islamic Azad University

**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**
Islamic Azad University
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Mahsa Manafi Varkiani
**Position**
Student
**Latest degree**
A Level or less
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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