

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### The comparison between intravenous acetaminophen versus oral ibuprofen in preterm newborns with patent ductus arteriosus

#### Protocol summary

##### Study aim

Comparison of the effect of intravenous acetaminophen and oral ibuprofen on the closure of Patent Ductus Arteriosus in preterm infants

##### Design

Qualified subjects were nonrandomly divided into two groups A (injectable acetaminophen) and B (oral ibuprofen) for the presence or absence of contraindication for ibuprofen. The sample size in each group was 25 neonates. The study was performed as a non-randomized controlled clinical trial.

##### Settings and conduct

This study was performed prospectively. Inclusion criteria included preterm neonates admitted to the NICU of Imam Khomeini Hospital Complex with gestational ages and weights less than 37 weeks old and 2500 grams, respectively, who had hemodynamically significant PDA. Participants included 50 premature infants divided into two groups. Each participant was given a 3-days course of medicine (second course if necessary) and at the end of each course echocardiography was performed to determine response to treatment. The rate of ductal closure, need for second course of medical treatment, need for surgical treatment and side effects were recorded. Blinding method was that the participants, infants and the parents, had no information about type of medication. The statistician had also no information about type of medication.

##### Participants/Inclusion and exclusion criteria

All premature newborns with hemodynamically significant PDA in NICU department of Vali-Asr Hospital, Imam Khomeini Hospital Complex

##### Intervention groups

Group A: Intravenous acetaminophen Group B: Oral ibuprofen

##### Main outcome variables

closure of PDA, The need for drug re-treatment, The need for surgical treatment, Increased serum creatinine, Gastrointestinal bleeding, Necrotizing enterocolitis,

Hyperbilirubinemia, Intraventricular Hemorrhage, Pulmonary Hemorrhage, Elevation of serum Aminotransferases

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20190206042639N1**

Registration date: **2019-09-24, 1398/07/02**

Registration timing: **retrospective**

Last update: **2019-09-24, 1398/07/02**

Update count: **0**

##### Registration date

2019-09-24, 1398/07/02

##### Registrant information

##### Name

Zeinab Harif nashtifani

##### Name of organization / entity

##### Country

Iran (Islamic Republic of)

##### Phone

+98 21 8852 4107

##### Email address

hrf.z24@gmail.com

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2016-06-21, 1395/04/01

##### Expected recruitment end date

2018-01-20, 1396/10/30

##### Actual recruitment start date

2016-08-22, 1395/06/01

##### Actual recruitment end date

2018-01-10, 1396/10/20  
**Trial completion date**  
2018-01-20, 1396/10/30

### Scientific title

The comparison between intravenous acetaminophen versus oral ibuprofen in preterm newborns with patent ductus arteriosus

### Public title

The comparison between intravenous acetaminophen versus oral ibuprofen in preterm newborns with patent ductus arteriosus

### Purpose

Treatment

### Inclusion/Exclusion criteria

#### Inclusion criteria:

Premature infants with hemodynamically significant Patent Ductus Arteriosus Premature infant with a gestational age of less than 37 weeks and a birth weight of less than or equal to 2500 grams

#### Exclusion criteria:

Ductal dependent congenital Heart diseases Life threatening infections Syndromic manifestations Persistent Pulmonary Hypertension

### Age

From **1 day** old to **15 days** old

### Gender

Both

### Phase

3

### Groups that have been masked

- Participant
- Data analyser
- Data and Safety Monitoring Board

### Sample size

Target sample size: **80**

Actual sample size reached: **50**

### Randomization (investigator's opinion)

Not randomized

### Randomization description

### Blinding (investigator's opinion)

Single blinded

### Blinding description

Participants (premature infants) have no information about prescribing drugs. The data analyzer has no information about type of Prescribing drugs. Safety Committee and Data Supervision has no information about type of Prescribing drugs.

### Placebo

Not used

### Assignment

Parallel

### Other design features

Oral ibuprofen is a commonly used drug for treating PDA in premature infants in Iran. Contraindications for use in premature infants admitted to the NICU are abundant. The particular feature of our study was that we used intravenous acetaminophen (apotel) for patients who were contraindicated in taking ibuprofen and having a hemodynamically significant PDA. Therefore, patients

who were normally deprived of treatment were treated with intravenous acetaminophen.

## Secondary Ids

empty

## Ethics committees

### 1

#### Ethics committee

##### Name of ethics committee

Ethics committee of Tehran University of Medical Sciences

##### Street address

Keshavarz Blv, Qods Street, Tehran University of Medical Sciences

##### City

Tehran

##### Province

Tehran

##### Postal code

1417653761

#### Approval date

2017-07-22, 1396/04/31

#### Ethics committee reference number

IR.TUMS.MEDICINE.REC.1396.290

## Health conditions studied

### 1

#### Description of health condition studied

Patent Ductus Arteriosus

#### ICD-10 code

Q25.0

#### ICD-10 code description

Patent ductus arteriosus

## Primary outcomes

### 1

#### Description

closure of PDA in preterm infants

#### Timepoint

Echocardiography at 3 to 15 days of birth (before starting treatment), 4 days after starting treatment

#### Method of measurement

Echocardiographically

## Secondary outcomes

### 1

#### Description

requires a second course of medical treatment

#### Timepoint

The day after the first course of medical treatment

#### Method of measurement

Ecocardiographically

## 2

### **Description**

Need for surgical treatment

### **Timepoint**

The day after the second course of medical treatment

### **Method of measurement**

Ecocardiographically

## 3

### **Description**

Increased serum creatinine

### **Timepoint**

Any time after initiation of medical treatment

### **Method of measurement**

Physical examination & laboratory tests

## 4

### **Description**

Incidence of pulmonary hemorrhage

### **Timepoint**

Any time after initiation of medical treatment

### **Method of measurement**

Physical examination & CXR

## 5

### **Description**

Incidence of intraventricular hemorrhage

### **Timepoint**

Any time after initiation of medical treatment

### **Method of measurement**

Physical examination & brain sonography

## 6

### **Description**

Incidence of gastrointestinal bleeding

### **Timepoint**

Any time after initiation of medical treatment

### **Method of measurement**

Physical examination & laboratory tests

## 7

### **Description**

Incidence of necrotizing enterocolitis

### **Timepoint**

Any time after initiation of medical treatment

### **Method of measurement**

Clinical and Paraclinical Examination

## 8

### **Description**

Impaired liver function tests

### **Timepoint**

Any time after initiation of medical treatment

### **Method of measurement**

Clinical examination and laboratory tests

## 9

### **Description**

Hyperbilirubinemia

### **Timepoint**

Any time after initiation of medical treatment

### **Method of measurement**

Clinical examination and laboratory tests

## **Intervention groups**

### 1

#### **Description**

Intervention group: Oral ibuprofen with a dose of 10 mg per kg on the first day and then 5 mg per kilogram in the next two doses at intervals of 24 and 48 hours

#### **Category**

Treatment - Drugs

### 2

#### **Description**

Intervention group: Intravenous Acetaminophen With a dose of 10 mg per kg body weight every 6 hours up to a maximum of 60 mg per kg per day for 3 days

#### **Category**

Treatment - Drugs

## **Recruitment centers**

### 1

#### **Recruitment center**

##### **Name of recruitment center**

Imam Khomeini Hospital Complex, Valiasr Hospital, NICU Department

##### **Full name of responsible person**

Zeinab Harif Nashtifani

##### **Street address**

NICU Department, Valiasr Hospital, Imam Khomeini Hospital Complex, End of Keshavarz Blvd

##### **City**

Tehran

##### **Province**

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##### **Postal code**

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##### **Email**

HRF.Z24@gmail.com

## **Sponsors / Funding sources**

### 1

#### **Sponsor**

##### **Name of organization / entity**

Tehran University of Medical Sciences

##### **Full name of responsible person**

Dr. Massoud Younesian

**Street address**

Deputy Director of Research and Technology, Central Organization of Tehran University of Medical Sciences, Corner of Qods Street, Keshavarz Blvd

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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**

Tehran University of Medical Sciences

**Proportion provided by this source**

50

**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**

Tehran University of Medical Sciences

**Full name of responsible person**

Zeinab Harif Nashtifani

**Position**

Pediatric Resident

**Latest degree**

Specialist

**Other areas of specialty/work**

Pediatrics

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**Person responsible for scientific inquiries****Contact****Name of organization / entity**

Tehran University of Medical Sciences

**Full name of responsible person**

Behzad Mohammadpour Ahrendani

**Position**

Assistant Professor

**Latest degree**

Subspecialist

**Other areas of specialty/work**

Pediatrics

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**Person responsible for updating data****Contact****Name of organization / entity**

Tehran University of Medical Sciences

**Full name of responsible person**

Zeinab Harif Nashtifani

**Position**

Resident

**Latest degree**

Specialist

**Other areas of specialty/work**

Pediatrics

**Street address**

No. 26, Vatani Alley, Kavosifar Ave, Beheshti Street

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**Province**

Tehran

**Postal code**

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**Email**

hrf.z24@gmail.com

**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**

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**  
Study data include general data, study method, data analysis method, study results and general conclusions will be Published in validated journals and will be available to the researchers.  
**When the data will become available and for how long**

In the next solar year  
**To whom data/document is available**  
Researchers working in academia and academia  
**Under which criteria data/document could be used**  
For clinical use, sharing among other researchers and benchmarking for similar cases  
**From where data/document is obtainable**  
Dr. Behzad Mohammadpour Ahrangani, End of keshavarz Blvd, Imam Khomeini Hospital, Valiasr Hospital, Children's Department, 00982161192361, postal code 1419733141  
**What processes are involved for a request to access data/document**  
Applicants can access the study information by telephone or correspondence to the address of Dr. Behzad Mohammadpour Ahrandani.  
**Comments**