

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

11 Jul 2026

### Effect of L-Carnitine (LC) and conjugated linoleic acid (CLA) supplements on hemoglobin levels in CKD patients with different haptoglobin genotype

#### Protocol summary

##### Summary

Objectives: Anemia is one of the complications in chronic renal failure. Patients treated with recombinant erythropoietin show resistance to erythropoietin treatment with increased risk of death. Haptoglobin is the main serum protein involved in hemoglobin metabolism with the anti-inflammatory property. Due to inhibitory effects of L-carnitine (LC) and conjugated linoleic acid (CLA) on inflammatory markers, lipid peroxidation and apoptosis, they can be used to treat anemia. The aim of current study is to investigate the effect of LC and CLA supplements on hemoglobin levels and inflammatory markers in male patients with chronic anemic kidney disease. Design: After obtaining written informed consent, patients will be selected by a physician, and then demographic and anthropometric factors will be gathered for 40 patients. Setting and Conduct: At the beginning of study, 7 ml of blood sample will be taken to measure the haptoglobin levels, IL-6, hs-CRP, iron, ferritin, TIBC, hemoglobin and hematocrit. Intervention: 1000 mg LC and 2400 mg CLA supplements will be given daily for a month. Blood samples will be taken at the end of study to measure above mentioned factors. Participants including major eligibility criteria: Anemic male patients with chronic kidney disease and ages above 20 years. Women and patients with diabetes; cardiovascular and lung disease will be excluded.

#### General information

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT201503055144N7**  
Registration date: **2017-05-18, 1396/02/28**  
Registration timing: **retrospective**

Last update:

Update count: **0**

##### Registration date

2017-05-18, 1396/02/28

##### Registrant information

###### Name

Ali Nemati

###### Name of organization / entity

Ardabil University of Medical Sciences

###### Country

Iran (Islamic Republic of)

###### Phone

+98 45 3351 0052

###### Email address

a.nemati@arums.ac.ir

##### Recruitment status

###### Recruitment complete

##### Funding source

Ardabil University of Medical Sciences

##### Expected recruitment start date

2015-08-23, 1394/06/01

##### Expected recruitment end date

2017-02-19, 1395/12/01

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

##### Trial completion date

empty

##### Scientific title

Effect of L-Carnitine (LC) and conjugated linoleic acid (CLA) supplements on hemoglobin levels in CKD patients with different haptoglobin genotype

##### Public title

Effect of L-Carnitine (LC) and conjugated linoleic acid (CLA) supplements on hemoglobin levels in CKD patients

## Purpose

Treatment

## Inclusion/Exclusion criteria

Inclusion criteria: Male patients with anemic chronic kidney disease over 20 years old  
Exclusion criteria: Women; Male patients with other disease such as cardiovascular; lung disease; diabetes

## Age

From **20 years** old to **80 years** old

## Gender

Male

## Phase

3

## Groups that have been masked

*No information*

## Sample size

Target sample size: **40**

## Randomization (investigator's opinion)

N/A

## Randomization description

## Blinding (investigator's opinion)

Not blinded

## Blinding description

## Placebo

Not used

## Assignment

Single

## Other design features

## Secondary Ids

### 1

#### Registry name

کمیته اخلاق دانشگاه علوم پزشکی اردبیل

#### Secondary trial Id

Arums.REC.93.95

#### Registration date

2015-08-20, 1394/05/29

## Ethics committees

### 1

#### Ethics committee

##### Name of ethics committee

Ethic Committee of Ardabil University of Medical Sciences

##### Street address

Ethic Committee of Ardabil University of Medical Sciences, Vice Chancellor for Research, Ardabil University of Medical Sciences, Daneshgah Avenue, Ardabil, Iran

##### City

Ardabil

##### Postal code

5318985991

#### Approval date

2015-08-20, 1394/05/29

#### Ethics committee reference number

Arums.REC.93.95

## Health conditions studied

### 1

#### Description of health condition studied

Renal failure

#### ICD-10 code

N17- N19

#### ICD-10 code description

N18.2-N18.4

## Primary outcomes

### 1

#### Description

Anemia

#### Timepoint

At the end of study

#### Method of measurement

Measurement of hemoglobin and hematocrit

## Secondary outcomes

### 1

#### Description

Height

#### Timepoint

At the beginning of intervention

#### Method of measurement

Stadiometers

### 2

#### Description

L-Carnitine

#### Timepoint

One month

#### Method of measurement

Milligram

### 3

#### Description

Conjugated linoleic acid

#### Timepoint

One month

#### Method of measurement

Milligram

### 4

#### Description

Weight

#### Timepoint

At the beginning and end of intervention

#### Method of measurement

Digital scales

## 5

### **Description**

Hemoglobin

### **Timepoint**

At the beginning and end of intervention

### **Method of measurement**

Cell counter

## 6

### **Description**

Hematocrit

### **Timepoint**

At the beginning and end of intervention

### **Method of measurement**

Cell counter

## 7

### **Description**

Serum iron

### **Timepoint**

At the beginning and end of intervention

### **Method of measurement**

Photometric method

## 8

### **Description**

Serum Ferritin

### **Timepoint**

At the beginning and end of intervention

### **Method of measurement**

Chemiluminescence immunoassay

## 9

### **Description**

hsCRP

### **Timepoint**

At the beginning and end of intervention

### **Method of measurement**

Immunometric method

## 10

### **Description**

Srum TIBC

### **Timepoint**

At the beginning and end of intervention

### **Method of measurement**

Photometric method

## 11

### **Description**

Serum interleukin-6

### **Timepoint**

At the beginning and the end of intervention

### **Method of measurement**

ELISA

## 12

### **Description**

DNA extraction

### **Timepoint**

At the end of intervention

### **Method of measurement**

Cinnagen kit

## 13

### **Description**

Haptoglobin genotype

### **Timepoint**

At the end of intervention

### **Method of measurement**

PCR method

## **Intervention groups**

### 1

#### **Description**

Given 1000 milligram L-carnitine and 2400 milligram CLA per day for 30 days

#### **Category**

Treatment - Drugs

## **Recruitment centers**

### 1

#### **Recruitment center**

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

Ardabil University Of Medical Science

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

Ali Nemati

##### **Street address**

Biochemistry Dept., Faculty of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran

##### **City**

Ardabil

## **Sponsors / Funding sources**

### 1

#### **Sponsor**

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

Vice Chancellor for Research Ardabil University of Medical Sciences

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

Mohsen Sagha

##### **Street address**

Vice Chancellor for Research Ardabil University of Medical Sciences, Ardabil University of Medical Sciences, Daneshgah Avenue, Ardabil, Iran

##### **City**

Ardabil

#### **Grant name**

#### **Grant code / Reference number**

#### **Is the source of funding the same sponsor**

**organization/entity?**

Yes

**Title of funding source**

Vice Chancellor for Research Ardabil University of Medical Sciences

**Proportion provided by this source**

100

**Public or private sector**

*empty*

**Domestic or foreign origin**

*empty*

**Category of foreign source of funding**

*empty*

**Country of origin****Type of organization providing the funding**

*empty*

University of Medical Sciences, Daneshgah Avenue, Ardabil, Iran.

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**Full name of responsible person**

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**Other areas of specialty/work****Street address**

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**Sharing plan****Deidentified Individual Participant Data Set (IPD)**

*empty*

**Study Protocol**

*empty*

**Statistical Analysis Plan**

*empty*

**Informed Consent Form**

*empty*

**Clinical Study Report**

*empty*

**Analytic Code**

*empty*

**Data Dictionary**

*empty*