Clinical Trial Protocol
Iranian Registry of Clinical Trials

18 Sep 2026

Evaluating the effect of L-carnitine on the prevention of postoperative atrial fibrillation and acute kidney injury (AKI) following coronery artery bypass grafting (CABG) surgery.

Protocol summary

Summary

The goal of this randomized clinical trial is evaluation of the impacts of L-carnitine on the prevention of postoperative atrial fibrillation and acute kidney injury (AKI) following coronery artery bypass grafting (CABG) surgery. One of the most common adverse effects after CABG surgery is atrial fibrillation (AF) which occurs to 15% to 40% of the patients. AF causes pump failure and ventricular filling dysfunction, so prevention of AF has a great effect on reducing the mortality of patients. L-carnitine has the ability to transport the long-chain fatty acids from cytoplasm to mitochondria where the oxidative metabolism produces ATP for myocardia. Acute kidney injury is reported up to 41% after CABG surgery. The aim of another part of this study is to evaluate the impact of l-carnitine in prevention of AKI by means of Neutrophil gelatinase-associated lipocalin (NGAL) 100 patients were randomly placed in two groups of 50 people (intervention and control group). The first group of patients will receive 3 g L - carnitine (1 g every 8 hours) for 2 days before and after surgery. The next group will not receive the drug. In both groups, blood samples are collected and biomarkers of inflammation and AKI such as hs-CRP (48 hours before and after surgery) and NGAL (48 hours before and 2 hours after surgery) will be measured.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201301028698N7**
Registration date: **2013-04-10, 1392/01/21**
Registration timing: **registered_while_recruiting**

Last update:
Update count: **0**

Registration date

2013-04-10, 1392/01/21

Registrant information

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Recruitment status

Recruitment complete

Funding source

Tehran university of medical sciences

Expected recruitment start date

2013-02-01, 1391/11/13

Expected recruitment end date

2014-02-01, 1392/11/12

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Evaluating the effect of L-carnitine on the prevention of postoperative atrial fibrillation and acute kidney injury (AKI) following coronery artery bypass grafting (CABG) surgery.

Public title

Evaluating the effect of L-carnitine on the prevention of

postoperative atrial fibrillation and acute kidney injury (AKI) following coronery artery bypass grafting (CABG) surgery.

Purpose

Prevention

Inclusion/Exclusion criteria

]Inclusion criteria: The patients who candidate for Coronary artery bypass graft surgery in Tehran Heart center are selected by simple randomised method; There are not any limitations for age; and sex in this study. Exclusion criteria: Valvular surgery; History of supraventricular arrhythmia; History of siezure; History of hypersensitivity reaction to l-carnitine; Chronic liver failure (Liver enzymes more than 3 times of ULN); Chronic kidney disease (Stage IV & V); Hypothyroidism; Use of Magnesium, NSAIDs and Antiarrhythmic medication.

Age

No age limit

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **100**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Double blinded

Blinding description

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Tehran Heart Center

Street address

Jalal Ale Ahmad, North Karegar

City

Tehran

Postal code

Approval date

2012-08-13, 1391/05/23

Ethics committee reference number

567

Health conditions studied

1

Description of health condition studied

ischemic heart disease

ICD-10 code

I25.1

ICD-10 code description

Atherosclerotic heart disease

Primary outcomes

1

Description

Atrial fibrillation

Timepoint

5 days post CABG surgery

Method of measurement

ECG, hs-CRP

Secondary outcomes

1

Description

Acute kidney injury

Timepoint

up to 48 hours after surgery

Method of measurement

NGAL, serum creatinine

Intervention groups

1

Description

Intervention group: administration of L-carnitine, 1 g oral solution vial, 3 times a day (TDS) every 8 hours, duration of intervention is 4 days (from 48 hours before surgery until 48 hours after it)

Category

Treatment - Drugs

2

Description

Control group: This group does not receive any interventions.

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Tehran heart center

Full name of responsible person

Street address
City
Tehran

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Tehran university of medical sciences
Full name of responsible person
Fatemeh Saeidi
Street address
Keshaverz Blv, Qods St, Tehran university of medical sciences, Research deputy
City
Tehran
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
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

2

Sponsor
Name of organization / entity
Tehran University of Medical Sciences
Full name of responsible person
Fatemeh Saidi
Street address
Research deputy, Tehran university of medical sciences, Qods st., Keshavarz Blv.
City
Tehran
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
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

Person responsible for general inquiries

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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