Clinical Trial Protocol
Iranian Registry of Clinical Trials

28 Sep 2026

Comparing radial artery flow-mediated dilation in transient ulnar and brachial artery compression

Protocol summary

Study aim
The purpose of this study is to comparing flow mediated dilation (FMD) through two methods of compression of the brachial and ulnar artery.

Design
The clinical trial was conducted on two randomized cross-over and double-blind groups on 30 volunteers .

Settings and conduct
30 volunteers referred to the catheterization department of Imam Khomeini Hospital were studied. After 15 minutes of rest, the baseline diameter of the radial artery was measured. In the first group the ulnar artery was compressed for 5 minutes, and the two-dimensional images of radial artery were recorded after the compression was released, every 30 seconds to 2 minutes. In the second group, a cuff was fixed in the upper arm area and 30 mmHg Above systolic pressure was inflated for 5 minutes and then two-dimensional images were recorded at the mentioned time intervals. Then, in each group, another maneuver was performed in the evening of the same day .

Participants/Inclusion and exclusion criteria
Participants with history of angiography through the radial artery, and a history of taking vasoactive drugs or congenital heart disease will be excluded from the study.

Intervention groups
First group: ulnar compression will be done at 8-10 in the morning and Upper arm compression will be done at 4-6 in the evening. The second group: Upper arm compression will be done at 8-10 in the morning and ulnar compression will be done at 4-6 in the evening.

Main outcome variables
The effect of the studied maneuvers on the diameter and area of the radial artery

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20230209057372N1**
Registration date: **2023-10-03, 1402/07/11**
Registration timing: **registered_while_recruiting**

Last update: **2023-10-03, 1402/07/11**
Update count: **0**

Registration date
2023-10-03, 1402/07/11

Registrant information

Name
fateme bahrami

Name of organization / entity

Country
Iran (Islamic Republic of)

Phone
+98 21 6119 2648

Email address
fatemehbahrami288@yahoo.com

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2023-09-28, 1402/07/06

Expected recruitment end date
2023-10-28, 1402/08/06

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Comparing radial artery flow-mediated dilation in transient ulnar and brachial artery compression

Public title

Comparing radial artery flow-mediated dilation in transient ulnar and brachial artery compression

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Participants over the age of18 years old should not have a history of angiography through the radial artery. Participants over the age of18 years old should not have a history of use of vasoactive drugs include 1)Catecholamines: adrenaline ,noradrenaline ,dopamine ,dobutamine ,... 2)vasodilators :nitrates ,... 3)Vasopressors : phenylephrine ,vasopressin,...4)Phosphodiesterase inhibitors 5)Calcium Sensitizers and digoxin ,calcium. Participants over the age of18 years old should not have a history of congenital heart disease.

Exclusion criteria:

The participant's request to exit from the study before the completion of study. The need to take vasoactive drugs during the study according to therapeutic indications

Age

From **18 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Participant
- Care provider

Sample size

Target sample size: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

Blocks were used for randomization and the participants were divided into 6 blocks of 5 participants. 3 blocks were assigned to group 1; another 3 blocks assigned to group 2.

Blinding (investigator's opinion)

Double blinded

Blinding description

Before starting the study, the participant does not know which group he is in The first group measured the diameter of the radial artery by closing the cuff on the brachial area in the morning and pressing on the ulnar area in the afternoon. The second group measured the diameter of the radial artery by pressing on the ulnar area in the morning and closing the cuff in the brachial area in the afternoon. The radiologist who measures the diameter and area of the radial artery before and after the maneuver does not know the type of maneuver and the time of the study.

Placebo

Not used

Assignment

Crossover

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of tehran University of Medical Sciences

Street address

Keshavarz Boulevard, corner of Qods St., Central Organization of Tehran University of Medical Sciences

City

Tehran

Province

Tehran

Postal code

1417653761

Approval date

2023-01-22, 1401/11/02

Ethics committee reference number

IR.TUMS.IKHC.REC.1401.310

Health conditions studied

1

Description of health condition studied

coronary angiography by radial access

ICD-10 code

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ICD-10 code description

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Primary outcomes

1

Description

Diameter of radial artery

Timepoint

Before starting the maneuver and after finishing the maneuver every 30 seconds to 2 minutes

Method of measurement

Two-dimensional images of vivid IQE ultrasound machine

2

Description

Area of radial artery

Timepoint

Before starting the maneuver and after finishing the maneuver every 30 seconds to 2 minutes

Method of measurement

Two-dimensional images of vivid IQE ultrasound machine

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Ulnar compression will be done for 5 minutes at 8-10 in the morning, and brachial compression will be done at 4-6 in the evening for 5 minutes.
Category
Treatment - Devices

2

Description
Intervention group: at 8-10 in the morning brachial compression will be performed for 5 minutes, and at 4-6 in the evening, ulnar compression will be performed for 5 minutes.
Category
Treatment - Devices

Recruitment centers

1

Recruitment center
Name of recruitment center
catheterism unit of tehran emam khomeini hospital
Full name of responsible person
Fateme Bahrami
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Tehran University of Medical Sciences
Full name of responsible person
Akbar Fotoohi
Street address
Keshavarz Blvd., corner of Quds St., Central Organization of the University, 6th floor of Research and Technology Vice-Chancellor
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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
Vice President of Research and Technology, Tehran University of Medical Sciences
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
Tehran University of Medical Sciences
Full name of responsible person
Fateme Bahrami
Position
resident
Latest degree
Medical doctor
Other areas of specialty/work
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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