Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 2026

Comparison of the effectiveness of PC6 and ST36 acupressure on cardiac physiological indices in patients after coronary angiography

Protocol summary

Study aim
Determining the effectiveness of PC6 and ST36 pressure point massage on physiological indicators of patients after coronary angiography

Design
Controlled clinical trial, with parallel groups, double-blind, randomized, on 150 patients

Settings and conduct
The samples will be randomly assigned to 5 groups. The duration of each session will be 5 minutes. The intervention will be conducted at Farshchian Heart Hospital, Hamadan.

Participants/Inclusion and exclusion criteria
Inclusion criteria: Diagnostic angiography performed via the femoral or radial artery and hospitalization in the CCU, age: 18 to 85 years, no skin lesions, ulcers, or active inflammation in the areas of the target pressure points (PC6 and ST36), no use of medications that affect the autonomic nervous system or cardiovascular responses. Exclusion criteria: occurrence of hemodynamic instability during the study, lack of effective cooperation, or patient withdrawal.

Intervention groups
In intervention group 1, in addition to standard postoperative care, they will receive acupressure at the PC6 point. In intervention group 2, in addition to standard care, they will receive acupressure at the ST-36 point. In sham group 1, pressure is applied to a non-therapeutic point, about 1 to 1.5 cm away from the actual PC6 point. In sham group 2, pressure is applied to a non-therapeutic point, about 1 to 1.5 cm away from the actual ST36 point. Control group: In this group, they will receive only standard care.

Main outcome variables
Blood pressure, heart rate, and peripheral perfusion index

General information

Reason for update

Acronym
PPMCA

IRCT registration information
IRCT registration number: **IRCT20250730066695N4**
Registration date: **2025-09-14, 1404/06/23**
Registration timing: **prospective**

Last update: **2025-09-14, 1404/06/23**
Update count: **0**

Registration date
2025-09-14, 1404/06/23

Registrant information

Name
Behzad Imani

Name of organization / entity

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Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2025-10-07, 1404/07/15

Expected recruitment end date
2026-02-19, 1404/11/30

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Comparison of the effectiveness of PC6 and ST36 acupressure on cardiac physiological indices in patients after coronary angiography

Public title
The effectiveness of pressure point massage on physiological indicators of patients after coronary angiography

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Diagnostic angiography via femoral or radial artery and admission to CCU Age 18 to 85 years No skin lesions, ulcers, or active inflammation in the areas of the targeted pressure points (PC6 and ST36) Stable hemodynamic status based on initial assessment by the attending physician No use of medications that affect the autonomic nervous system or cardiovascular responses (such as beta-blockers, sedatives, or centrally acting antidepressants) No history of using acupressure or other similar complementary methods in the past 3 months

Exclusion criteria:
Occurrence of hemodynamic instability or need for emergency measures during the study (including need for vasopressors or cardiopulmonary resuscitation or shock) The occurrence of any acute complications after angiography (such as severe bleeding, significant arrhythmia, extensive hematoma, or embolism) Lack of effective cooperation or patient withdrawal from continuing to participate in the study

Age
From **18 years** old to **85 years** old

Gender
Both

Phase
N/A

Groups that have been masked

- Participant
- Data analyser

Sample size
Target sample size: **150**

Randomization (investigator's opinion)
Randomized

Randomization description
In order to balance the number of samples in each group and prevent bias in allocation, a randomization method with permutation blocks with a block size of 10 will be used. In this method, all possible combinations of five groups including: Intervention group 1 with PC6 pressure point stimulation, Intervention group 2 with ST36 pressure point stimulation, Sham group 1 related to PC6, Sham group 2 related to ST36, and Control group (no intervention) are defined within blocks of 10. Then, the list of combinations is randomly sorted using statistical software, and the final patient allocation table is prepared by an independent statistician.

Blinding (investigator's opinion)
Double blinded

Blinding description
The study is designed as a double-blind study; the interventionist is aware of the group allocation, but the participants, statistical analyst, and care nurses are unaware of the type of intervention received.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics committee of Hamadan University of Medical Sciences

Street address
Office of Vice Chancellor for Research and Technology, Hamadan University of Medical Sciences (UMSHA), Building No. 4, Shariati Crossroad., Hamadan, Iran.

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Approval date
2025-09-06, 1404/06/15

Ethics committee reference number
IR.UMSHA.REC.1404.437

Health conditions studied

1

Description of health condition studied
Coronary angiography

ICD-10 code
B97.2

ICD-10 code description
Coronavirus as the cause of diseases classified elsewhere

Primary outcomes

1

Description
Mean arterial pressure (MAP)

Timepoint
Before intervention (Baseline), immediately after intervention, 10 minutes after intervention, 20 minutes after intervention, 30 minutes after intervention

Method of measurement
Using a digital blood pressure monitor

2

Description
Heart rate (HR)
Timepoint
Before intervention (Baseline), immediately after intervention, 10 minutes after intervention, 20 minutes after intervention, 30 minutes after intervention
Method of measurement
Using a cardiac monitoring device

3

Description
Peripheral perfusion index (PI)
Timepoint
Before intervention (Baseline), immediately after intervention, 10 minutes after intervention, 20 minutes after intervention, 30 minutes after intervention
Method of measurement
Using a digital pulse oximeter

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Intervention group 1 (PC6 point massage): In addition to standard postoperative care, patients in the intervention group will undergo acupressure at the PC6 point. Massage site: The inner surface of the forearm, two fingers above the wrist crease, between the palmaris longus and flexor carpi radialis tendons.
Category
Treatment - Other

2

Description
Intervention Group 2 (ST36 point massage): In addition to standard care, patients in this group will receive acupressure at the ST-36 point. The massage site is four finger widths below the lower edge of the kneecap and approximately 2.5 cm outward along the tibia.
Category
Treatment - Other

3

Description
Sham group 1 (related to PC6 pressure point): In addition to receiving standard care, patients in this group are subjected to mechanical pressure similar in duration, intensity, and method of application to the PC6 intervention group; the difference is that pressure is applied to a non-therapeutic point with no energy meridian path, approximately 1 to 1.5 centimeters away from the actual PC6 point.
Category
Treatment - Other

4

Description
Pseudo Group 2 (related to the ST36 pressure point): In this group, in addition to the usual ward care, patients receive pressure similar in duration (5 minutes), intensity (uniform pressure with the thumb), and method of applying pressure, but at a non-therapeutic point with no therapeutic properties, located 1 to 1.5 centimeters from the actual location of ST36.
Category
Treatment - Other

5

Description
Control group: Patients in this group will only receive standard intensive care unit care.
Category
Treatment - Other

Recruitment centers

1

Recruitment center
Name of recruitment center
Farshchian Heart Hospital, Hamadan
Full name of responsible person
keyhan jafari
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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
Hamedan 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
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Nursing student

Latest degree
Bachelor

Other areas of specialty/work
Nursery

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Nursery

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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