Clinical Trial Protocol
Iranian Registry of Clinical Trials

09 Jun 2026

The impact of saffron total glycoside tablets on Doxorubicin-induced cardiotoxicity in patients with breast cancer: Randomized clinical trial

Protocol summary

Study aim
The impact of saffron total extract tablets on Doxorubicin-induced cardiotoxicity in patients with breast cancer

Design
A single-center, blinded, randomized clinical trial with a placebo group on 188 patients with breast cancer receiving a Doxorubicin-based regimen. The sealed envelope website will be used for randomization.

Settings and conduct
This study will be conducted as a triple-blind clinical trial at the Imam Hossein medical and educational center affiliated with Shahid Beheshti University of Medical Sciences on patients with breast cancer receiving a Doxorubicin-based regimen.

Participants/Inclusion and exclusion criteria
Female patients aged 18 to 70 years with primary breast cancer and receiving Ḍoxorubicin-based chemotherapy, without previous chest radiotherapy and Karnofsky score more than 60 and life expectancy of more than 6 months will be included in the study. Subjects with cardiomyopathy, systolic blood pressure below 90 mmHg or above 180 mmHg, chronic kidney disease, serum potassium above 5.5 mmol/L, severe liver failure, patients who receive vitamin K antagonists, pregnant or lactating patients, and patients participating in other clinical trials will be excluded from the study.

Intervention groups
Subjects in the intervention group will receive saffron tablets containing 177 mg of saffron extract twice a day for a maximum of three months along with the Doxorubicin-based chemotherapy regimen, and the patients in the control group will receive identical placebo along with the Doxorubicin-based chemotherapy regimen.

Main outcome variables
Comparing the incidence of cardiac dysfunction (based on echocardiographic parameters, cardiac biomarkers, and ECG findings) in breast cancer patients receiving doxorubicin in the placebo and intervention groups

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20120703010178N26**
Registration date: **2023-06-25, 1402/04/04**
Registration timing: **prospective**

Last update: **2023-06-25, 1402/04/04**
Update count: **0**

Registration date
2023-06-25, 1402/04/04

Registrant information

Name
Mohammad Sistanizad

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
2023-07-22, 1402/04/31

Expected recruitment end date
2024-08-21, 1403/05/31

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date

empty

Scientific title
The impact of saffron total glycoside tablets on Doxorubicin-induced cardiotoxicity in patients with breast cancer: Randomized clinical trial

Public title
Impact of saffron tablets on Doxorubicin-induced cardiotoxicity

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Female patients aged 18 to 70 years Patients with histologically or cytologically proven primary breast cancer Receiving chemotherapy with doxorubicin, without prior bilateral/unilateral thoracic radiotherapy Karnofsky score more than 60 Life expectancy more than 6 months

Exclusion criteria:
Patients diagnosed with cardiomyopathy Patients receiving vitamin K antagonists or DOACs Patients with chronic kidney disease with eGFR < 30 ml/min/1.73 m2 Patients with serum potassium above 5.5 mmol/L Patients with severe liver failure (Child-Pough C) Patients who have previously received anthracycline Patients who are currently pregnant or breastfeeding Patients participating in other clinical trials

Age
From **18 years** old to **70 years** old

Gender
Female

Phase
3

Groups that have been masked

- Participant
- Care provider
- Investigator
- Outcome assessor
- Data analyser

Sample size
Target sample size: **188**
More than 1 sample in each individual
Number of samples in each individual: **2**
Blood samples from study subjects will be collected for the determination of cardiac biomarkers and PAB, before recruitment, and after the completion of the chemotherapy, or three months after the beginning of the chemotherapy (whichever is earlier)

Randomization (investigator's opinion)
Randomized

Randomization description
All eligible subjects will be randomly assigned to intervention or placebo groups with a ratio of 1:1. The randomization will be done by permuted block randomization method using sealedenvelope website, located at the address https://www.sealedenvelope.com, with a block size of 4. Depending on the selected sample size, patients will be randomly assigned to the intervention or placebo arm of the study.

Blinding (investigator's opinion)
Triple blinded

Blinding description
This investigation is a triple-blind trial. The manufacturing company will make the tablets containing the total saffron extract and a placebo pill that is identical to the tablets. The study participants, caregivers, outcome assessors, and data analysts will all remain unaware of the study groups.

Placebo
Used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics committee of Shahid Beheshti University of Medical Sciences

Street address
Faculty of pharmacy, Niayesh and Vali-e-Asr junction

City
Tehran

Province
Tehran

Postal code
1991953381

Approval date
2023-03-06, 1401/12/15

Ethics committee reference number
IR.SBMU.PHARMACY.REC.1401.304

Health conditions studied

1

Description of health condition studied
Cardiomyopathy

ICD-10 code
I42.7

ICD-10 code description
Cardiomyopathy due to drug and external agent

Primary outcomes

1

Description
Incidence of heart failure in study subjects

Timepoint
At the beginning of the study and the end of chemotherapy or three months after the start of chemotherapy (whichever is earlier)

Method of measurement

Based on the findings of echocardiography, including ejection fraction and Global Longitudinal Strain (GLS) of the heart, cardiac biomarkers, and ECG according to the definition of the European Heart Association in 2022.

Secondary outcomes

1

Description
Prooxidant-Antioxidant Balance (PAB)
Timepoint
At the beginning of the study and the end of chemotherapy or three months after the start of chemotherapy (whichever is earlier)
Method of measurement
Laboratory kit

2

Description
Drug adherence
Timepoint
Monthly
Method of measurement
Pill count

Intervention groups

1

Description
Intervention group: The patient will be assigned to the intervention group based on the predetermined random plan once the researcher has confirmed that the candidate satisfies all inclusion and exclusion criteria for entry into the study. Eligible patients will take an oral tablet containing 177 mg of saffron extract twice daily, for a period of three months or until the completion of chemotherapy (whichever comes first).
Category
Treatment - Drugs

2

Description
Control group: Patients in this group will receive placebo at a dose of one tablet twice a day for 3 months or the end of chemotherapy (whichever is earlier).
Category
Placebo

Recruitment centers

1

Recruitment center
Name of recruitment center
Immam Hossein Hospital
Full name of responsible person
Yasamin Farzaneh
Street address
Madani Ave, Tehran, Iran
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Shahid Beheshti University of Medical Sciences
Full name of responsible person
Afshin Zarghi
Street address
Shahid Beheshti University of Medical Sciences, Aarabi St., Daneshjoo Blvd., Valenjak, TehranYemen St., Chamran Hwy
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Phone
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Email
Mpajouhesh@sbmu.ac.ir
Web page address
https://research.sbmu.ac.ir/
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
No
Title of funding source
Prevention of Cardiovascular Disease Research Center
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
Shahid Beheshti University of Medical Sciences
Full name of responsible person

Mohammad Sistanizad

Position
Professor / Clinical Pharmacy Specialist

Latest degree
Specialist

Other areas of specialty/work
Medical Pharmacy

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Department of Clinical Pharmacy, Shahid Beheshti School of Pharmacy, after Niayesh intersection; Valiasr street

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Person responsible for updating data

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Full name of responsible person
Yasamin Farzaneh

Position
Student

Latest degree
A Level or less

Other areas of specialty/work
Medical Pharmacy

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is a plan to make this available

Study Protocol
Yes - There is a plan to make this available

Statistical Analysis Plan
No - There is not 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
Not applicable

Title and more details about the data/document
Primary and secondary outcome data after making unrecognizable will be released.

When the data will become available and for how long
6 months after publishing the results of primary outcome.

To whom data/document is available
Any researchers will have access to the data after allowance of corresponding author.

Under which criteria data/document could be used
Performing any analysis to any data resulted form this study will be allowed only with the permission of corresponding author

From where data/document is obtainable
Correspondance

What processes are involved for a request to access data/document
After requesting for data, correspondence will check the authorization and then they will be informed about it

Comments