Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

The Safety & Feasibility of Bi-Layered Allogeneic Cultured Keratinocyte and Fibroblast Skin Substitute Application for Chronic Diabetic Foot Ulcers: Clinical Trial Phase I

Protocol summary

Study aim

Determining the safety and feasibility of bi-layered allogenic cultured keratinocyte and fibroblast skin substitute application in the treatment of chronic diabetic foot ulcer

Design

In this first phase, single group, not randomized open-label clinical trial study, five patients will be enrolled in regular order according to standard protocols. The first patient will be monitored for one month, and if cell therapy is safe, the next patient will be Entered the study. Again, provided the treatment is safe during this period, the second and then the third patient will enter the study. In the absence of severe and life-threatening complications, subsequent patients will be included in the study.

Settings and conduct

Intervention site and patient visit: Diabetic foot ulcer clinic of Tehran University of Medical Sciences
Intervention: Debridement and skin substitute grafting to the dimensions of patients' wounds in the wound area

Participants/Inclusion and exclusion criteria

Inclusion criteria: Patients with chronic diabetic foot ulcer on the plantar surface of the foot that is grade 2A in University of Texas score with the size of 2 to 20 cm2, that not treated despite two weeks of standard treatment, and with Conscious consent Exclusion criteria: Pregnant patients, with weakened immune systems or uncontrolled underlying disease, evidence of infection, osteomyelitis, or gangrene

Intervention groups

The intervention group consisted of diabetic patients with chronic diabetic foot ulcers that receive skin substitute transplantation at the beginning and on the 14th day if the wound did not heal.

Main outcome variables

Evaluation of side effects, including short-term and long-term, systemic or local, severe or mild, and related and unrelated side effects of cell therapy at times 3, 7, 14, 18, 21, 28 days, and 6, 8, 12, 16, 20 and 24 weeks after the intervention

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20080728001031N33**
Registration date: **2022-07-03, 1401/04/12**
Registration timing: **prospective**

Last update: **2022-07-03, 1401/04/12**
Update count: **0**

Registration date

2022-07-03, 1401/04/12

Registrant information

Name

Nasser Aghdami

Name of organization / entity

Royan Institute

Country

Iran (Islamic Republic of)

Phone

+98 21 2356 2000

Email address

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-07-23, 1401/05/01

Expected recruitment end date

2023-07-23, 1402/05/01

Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
The Safety & Feasibility of Bi-Layered Allogeneic Cultured Keratinocyte and Fibroblast Skin Substitute Application for Chronic Diabetic Foot Ulcers: Clinical Trial Phase I

Public title
The Safety of Skin Substitute Application for Chronic Diabetic Foot Ulcer
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Age between 18-80 years Both gender Type I or II diabetes ABI ≥ 0.8 HgA1c ≤ 8% Palpable pulse Ulcer university of Texas score=2A Ulcer ≥ 4w presented ulcer >2w under standard care Ulcer on plantar surface of foot Ulcer Size ≥ 2.0 cm2 Ulcer depth ≤ 1cm
Exclusion criteria:
Pregnancy Malignancy not in remission for 5 y Severe malnutrition (serum albumin <2.0) Alcohol or drug abuse Random BS ≥ 450 mg/dL Urine ketones Use of corticosteroids, immunosuppressive or cytotoxic agents, Coumadin History of bleeding disorder Positive viral markers (HIV, HBV, HCV, HTLV, CMV) Participation in another study in previous 30 d Conditions compromise ability to complete the study Clinical evidence of infection at the beginning of the treatment phase Evidence of osteomyelitis Evidence of gangrene Charcot deformity Nondiabetic etiology Tunnels or sinus tracts Ulcer >20 cm2 (longest dimension > 5 cm) Elective osseous procedures to the study foot within 30 d before Increased or decreased in size by ≥ 20% in screening period Severe hepatic impairment (LFT ≥ 2 * ULN) or renal impairment (Cr> 2.5 mg/dl)
Age
From **18 years** old to **80 years** old
Gender
Both

Phase
1
Groups that have been masked
No information
Sample size
Target sample size: **5**
Randomization (investigator's opinion)
Not randomized
Randomization description
Blinding (investigator's opinion)
Not blinded
Blinding description
Placebo
Not used
Assignment
Single
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Research ethics committees of Royan institute-Academic center for education, culture and research
Street address
Royan Alley, Eastern Hafez St, Northern Banihashem St, 45 m Ghasem Soleymani Highway
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Province
Tehran
Postal code
1951883831
Approval date
2022-06-18, 1401/03/28
Ethics committee reference number
IR.ACECR.ROYAN.REC.1401.026

Health conditions studied

1

Description of health condition studied
Type 1 diabetes mellitus with foot ulcer
ICD-10 code
E10.621
ICD-10 code description
Type 1 diabetes mellitus with foot ulcer

2

Description of health condition studied
Type 2 diabetes mellitus with foot ulcer
ICD-10 code
E11.621
ICD-10 code description
Type 2 diabetes mellitus with foot ulcer

Primary outcomes

1

Description
short-term or long term, systemic or local, severe or mild, and related or unrelated to cell therapy adverse effects
Timepoint
Before the intervention, at the time of intervention, 3, 7, 14, 18, 21, 28 days and 6, 8, 12, 16, 20 and 24 weeks after the intervention
Method of measurement
Physician assessment by physical examination

Secondary outcomes

1

Description
Ulcer healing rate
Timepoint
12th week after intervention
Method of measurement
ImageJ software

2

Description
50% improvement in wound size
Timepoint
12th week after intervention
Method of measurement
ImageJ software

3

Description
mean rate of wound healing during the first 12 weeks
Timepoint
Days 3, 7, 14, 18, 21 and 28 as well as weeks 6, 8 and 12 after the intervention
Method of measurement
Physician evaluation and solar calendar

4

Description
The rate of recurrence of the wound at the site of the previous healing
Timepoint
24th week after the intervention
Method of measurement
Physician evaluation and examination

Intervention groups

1

Description
Intervention group: Name of substance used: Bi-layered skin substitute. Chemical composition and its concentration: Allogenic cultured keratinocyte and fibroblast cells. The number of 2 million fibroblast cells per square centimeter on type I bovine collagen bed and then 300,000 keratinocyte cells per square centimeter and a total diameter of 44 square centimeters. Frequency of use: 1 or 2 times. Duration of use: 2 weeks. How to use: A skin replacement graft of the same size as the wound is cut by sterile scissors and placed in the wound area after debridement and then covered with a suitable wound dressing. Manufacturer: ATMP Department of Royan Research Institute.
Category
Treatment - Other

Recruitment centers

1

Recruitment center
Name of recruitment center
Royan Institute
Full name of responsible person
Ensiyeh Hajizadeh Saffar
Street address
Royan Alley, Eastern Hafez St, Northern Banihashem St, 45 m Resalat Highway
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2

Recruitment center
Name of recruitment center
Endocrine research center of Tehran university of medical sciences
Full name of responsible person
Mohammadreza Amini
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Endocrine Research Center, 5th Floor, Dr. Shariati Hospital, North Kargar St., Tehran
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
ATI tech pharmed
Full name of responsible person
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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

ATI tech pharmed

Proportion provided by this source

100

Public or private sector

Private

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Other

Person responsible for general inquiries

Contact

Name of organization / entity

Royan Institute

Full name of responsible person

Shayan Farzanbakhsh

Position

researcher

Latest degree

Medical doctor

Other areas of specialty/work

General Practitioner

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Ensiyeh Hajizadeh Saffar

Position

Associate professor

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Ph.D.

Other areas of specialty/work

Medical Biotechnology

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Person responsible for updating data

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Position

researcher

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