

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### Evaluation of The efficacy of topical Melatonin on healing of diabetic foot ulcers in a double blind placebo-controlled clinical trial

#### Protocol summary

##### Study aim

topical efficacy of melatonin on diabetic foot ulcer healing

##### Design

Clinical trial, with parallel groups, double-blind, randomized, on 36 patients. Randomization outcome will be done in a block of 4 and through using excel software.

##### Settings and conduct

This study is going to be carried out at the Endocrinology clinics of Imam Khomeini affiliated with the Urmia University of Medical Sciences. Patients will be divided into two groups of 18 subjects. Each patient will receive topical gel of melatonin or placebo for 8 weeks. During the study, patients will receive standard care and treatment regimens for diabetic foot in both groups. The area and number of wounds are measured before the start of treatment and after 4 weeks and then at the end of 2 months. Researcher and patients will be blinded.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria: Age over 18 years, Grade 1 or 2 diabetic foot ulcers based on wagner, Patients with HgbA1c  $\leq 10\%$ , Obtain informed consent Patients Wound size more than one cm<sup>2</sup>, Patients with ankle brachial index  $> 0.4$  or Color Doppler Ultrasound with no result of severe lower artery involvement. Exclusion criteria: Need for injectable antibiotics, Allergy to topical melatonin product, Patients with uncontrolled epilepsy, Pregnancy and lactation Underlying skin disease leads to scarring Causes of wounds other than diabetes include trauma, Wounds happened in less than 2 weeks, Patients treated with chemotherapy or radiotherapy, Use of drugs that interfere with wound healing, such as: corticosteroids at least the equivalent dose of 40 mg of prednisolone, mycophenolate, cyclosporine, tacrolimus, rituximab, Patients with renal disease at stage 5 (GFR  $< 15$  ml/min) or on dialysis

##### Intervention groups

Interventional group: receives topical gel of melatonin at night. Control group: receives topical gel of placebo at

night

##### Main outcome variables

wound healing

#### General information

##### Reason for update

According to the sample size based on the number of wounds and determination of 50 wounds at the time of registration of the proposal in UMSU, each patient has one wound, 25 people in each group were determined, but currently the number of studied wounds is 50, but the number of patients currently is 26. (Some patients have the same wound in different parts of their legs) need permission to reduce the sample size to 36 people with assuming a drop out 20%.

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20200220046560N1**  
Registration date: **2021-04-09, 1400/01/20**  
Registration timing: **registered\_while\_recruiting**

Last update: **2023-04-10, 1402/01/21**

Update count: **1**

##### Registration date

2021-04-09, 1400/01/20

##### Registrant information

###### Name

Ayda Esmaeili

###### Name of organization / entity

###### Country

Iran (Islamic Republic of)

###### Phone

+98 44 3337 0046

###### Email address

ph.a.esmaeili@gmail.com

##### Recruitment status

**Recruitment complete**

##### Funding source

**Expected recruitment start date**

2021-04-01, 1400/01/12

**Expected recruitment end date**

2022-03-31, 1401/01/11

**Actual recruitment start date**

empty

**Actual recruitment end date**

empty

**Trial completion date**

empty

**Scientific title**

Evaluation of The efficacy of topical Melatonin on healing of diabetic foot ulcers in a double blind placebo-controlled clinical trial

**Public title**

Evaluation of The efficacy of topical Melatonin on healing of diabetic foot

**Purpose**

Treatment

**Inclusion/Exclusion criteria****Inclusion criteria:**

Patients equal and more 18 years old Grade 1 or 2 diabetic foot ulcers based on wagner Patients with HgbA1c ≤ 10% Obtain informed consent The size of the wound is more than one cm<sup>2</sup> Index affected by ankle > 0.4 or Color Doppler Ultrasound with no result of severe vascular involvement

**Exclusion criteria:**

Need to have injectable antibiotics Allergy to topical melatonin product Patients with uncontrolled epilepsy Pregnancy and lactation Any skin disorder leads to ulcer Causes of wounds other than diabetes such as trauma Wounds happened in less than 2 weeks Patients treated with chemotherapy or radiotherapy Use of drugs that interfere with wound healing, such as: corticosteroids at least the equivalent dose of 40 mg of prednisolone, mycophenolate, cyclosporine, tacrolimus, rituximab Patients with renal disease at stage 5 (GFR < 15 ml/min) or on dialysis

**Age**

From 18 years old

**Gender**

Both

**Phase**

2-3

**Groups that have been masked**

- Participant
- Investigator
- Data analyser

**Sample size**

Target sample size: 36

More than 1 sample in each individual

Number of samples in each individual: 3

Some patients have the same wound in different parts of their legs

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

Block randomization will be used in this study. The size of all blocks is equal and 5 blocks of 10 including 18 patients in the intervention group and 18 patients in the control group will be used. (with considering 20% drop out) To determine the random sequence of drug and placebo allocation within each block, the site <https://studyrandomizer.com/> is used and the sequences (sequence within block) are received in the form of an Excel file from the site. The output file will be assigned to each person a four-part code consisting of a letter and three digits separated by commas. In order to conceal random allocation, the method of opaque sealed envelopes with random sequence will be used. thirty six envelopes with aluminum wrappers (in order to obscure the contents of the envelopes) will be prepared and each of the random sequences created on one card will be recorded and the cards will be placed in the envelopes respectively. In order to maintain a random sequence, the envelopes will be numbered in the same way on the outer surface.

**Blinding (investigator's opinion)**

Double blinded

**Blinding description**

Both patients and researcher do not know about type of drug that receive ( melatonin or placebo) and are blinded. Placebo are prepared in same shape and color of melatonin topical Gel. Drug and placebo are coded in A and B groups with block randomization method. Then they are given to the researcher and patients.

**Placebo**

Used

**Assignment**

Parallel

**Other design features****Secondary Ids**

empty

**Ethics committees****1****Ethics committee****Name of ethics committee**

The ethics committee of Urmia University of Medical Sciences

**Street address**

Imam Khomeini Hospital, Ershad Ave., Urmia, I.R.IRAN

**City**

Urmia

**Province**

West Azarbaijan

**Postal code**

571478334

**Approval date**

2021-01-20, 1399/11/01

**Ethics committee reference number**

IR.UMSU.REC.1399.365

## Health conditions studied

### 1

#### Description of health condition studied

diabetic foot

#### ICD-10 code

E11.62

#### ICD-10 code description

Type 2 diabetes mellitus with skin complications

## Primary outcomes

### 1

#### Description

wound area

#### Timepoint

At the baseline (before intervention) and at the fourth week , Eighth week of intervention

#### Method of measurement

Using photos and area measurements

## Secondary outcomes

### 1

#### Description

sleep quality

#### Timepoint

Start of study, eighth week

#### Method of measurement

sleep questionnaire(Pittsburgh Sleep Quality Index)

### 2

#### Description

Life quality

#### Timepoint

Start of study, eighth week

#### Method of measurement

Diabetic Foot Ulcer Scale(DFS)

## Intervention groups

### 1

#### Description

Intervention group: Receive a topical form of melatonin (Razak Pharmaceutical Company) with standard regime(Blood sugar control, regular wound washing, pressure reduction on the wound, treatment with oral antibiotics if needed) and the instruction to use overnight rub into the wound for 8 weeks and the ultimate goal is to use one milligram of melatonin (0.2%) per square centimeter of wound.

#### Category

Treatment - Drugs

### 2

#### Description

Control group: Receive a topical form of placebo (Distilled water, carbomer, TEA) (school of pharmacy)with standard regime and the instruction to use overnight rub into the wound for 8 weeks.

#### Category

Treatment - Drugs

## Recruitment centers

### 1

#### Recruitment center

##### Name of recruitment center

Diabetes and diabetic foot ulcer treatment clinic affiliated to Urmia University of Medical Sciences

##### Full name of responsible person

Ayda Esmaeili

##### Street address

Imam Khomeini Hospital, Ershad Ave., Urmia, I.R.IRAN

##### City

Urmia

##### Province

West Azarbaijan

##### Postal code

571478334

##### Phone

+98 44 3346 9931

##### Fax

+98 44 3346 9935

##### Email

ph.a.esmaeili@gmail.com

## Sponsors / Funding sources

### 1

#### Sponsor

##### Name of organization / entity

Oroumia University of Medical Sciences

##### Full name of responsible person

Ayad Esmaeili

##### Street address

Imam Khomeini Hospital, Ershad Ave., Urmia, I.R.IRAN

##### City

Urmia

##### Province

West Azarbaijan

##### Postal code

571478334

##### Phone

+98 44 3346 9931

##### Fax

+98 44 3346 9935

##### Email

ph.a.esmaeili@gmail.com

#### Grant name

#### Grant code / Reference number

#### Is the source of funding the same sponsor organization/entity?

Yes  
**Title of funding source**  
Oroumia 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**  
Oroumia University of Medical Sciences  
**Full name of responsible person**  
Ayda Esmaeili  
**Position**  
Assistant Professor of Clinical Pharmacy  
**Latest degree**  
Specialist  
**Other areas of specialty/work**  
Medical Pharmacy  
**Street address**  
Imam Khomeini Hospital, Ershad Ave., Urmia, I.R.IRAN  
**City**  
urmia  
**Province**  
West Azarbaijan  
**Postal code**  
571478334  
**Phone**  
+98 44 3346 9931  
**Fax**  
+98 44 3346 9935  
**Email**  
ph.a.esmaeili@gmail.com

## Person responsible for scientific inquiries

**Contact**  
**Name of organization / entity**  
Oroumia University of Medical Sciences  
**Full name of responsible person**  
Ayda Esmaeili  
**Position**  
Assistant Professor of Clinical Pharmacy  
**Latest degree**  
Specialist  
**Other areas of specialty/work**  
Medical Pharmacy  
**Street address**  
Imam Khomeini Hospital, Ershad Ave., Urmia, I.R.IRAN  
**City**  
اروميه  
**Province**

West Azarbaijan  
**Postal code**  
571478334  
**Phone**  
+98 44 3346 9931  
**Fax**  
+98 44 3346 9935  
**Email**  
ph.a.esmaeili@gmail.com

## Person responsible for updating data

**Contact**  
**Name of organization / entity**  
Oroumia University of Medical Sciences  
**Full name of responsible person**  
Ayda Esmaeili  
**Position**  
Assistant Professor of Clinical Pharmacy  
**Latest degree**  
Specialist  
**Other areas of specialty/work**  
Medical Pharmacy  
**Street address**  
Imam Khomeini Hospital, Ershad Ave., Urmia, I.R.IRAN  
**City**  
اروميه  
**Province**  
West Azarbaijan  
**Postal code**  
571478334  
**Phone**  
+98 44 3346 9931  
**Email**  
ph.a.esmaeili@gmail.com

## 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**  
Yes - There is 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**  
Yes - There is 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  
**Title and more details about the data/document**  
average of age, sex, comorbidity, laboratory date  
**When the data will become available and for how long**  
article publish time  
**To whom data/document is available**  
scientific

**Under which criteria data/document could be used**

19 / 5000 Translation results Assess the accuracy of the study

**From where data/document is obtainable**

Responsible for the project

**What processes are involved for a request to access data/document**

Must be notified to the project manager through the journal in which the article was submitted

**Comments**