Assessment of Empagliflozin effect on renal outcome in patients with type 2 diabetes mellitus

Protocol summary

Study aim
Determination the effect of the Empagliflozin on the course of diabetic nephropathy

Design
This study is double blind randomized clinical trial in which 96 eligible patients are randomly allocated to the treatment (receiving Empagliflozin 10 mg daily) and control (receiving placebo) groups.

Settings and conduct
Patients with type 2 diabetes referred to endocrinologist clinic in Imam Hosein hospital of Tehran. In this study, the therapist, patients, and the individual analyzing the results are blinded to the allocation of patients into two groups.

Participants/Inclusion and exclusion criteria
Inclusion criteria: Age >18; type 2 diabetes ; GFR<60 or albuminuria. Exclusion criteria: Type 1 diabetes; heart attack and recent PCI; dialysis in recent 90s day; GFR<30; renal failure due to non diabetic causes; recurrent urinary infections; history of diabetic foot amputation; bladder cancer; active diabetic foot infection; pregnancy and lactation; major surgery in recent days.

Intervention groups
Case group: Empagliflozin 10mg daily recipient. Control group: placebo recipient.

Main outcome variables
Determination of Empagliflozin on glomerular filtration rate and albuminuria is considered as the primary outcome of this study.

General information

Reason for update
Acronym
IRCT registration information
IRCT registration number: IRCT20210906052395N1
Registration date: 2022-03-16, 1400/12/25
Registration timing: retrospective

Last update: 2022-03-16, 1400/12/25
Update count: 0
Registration date: 2022-03-16, 1400/12/25
Registrant information
Name: Almas Khatami zenozian
Name of organization / entity: Iran (Islamic Republic of)
Country: Iran (Islamic Republic of)
Phone: +98 21 4494 5438
Email address: almaskhatami@gmail.com

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date: 2021-09-23, 1400/07/01
Expected recruitment end date: 2022-03-01, 1400/12/10
Actual recruitment start date: empty
Actual recruitment end date: empty
Trial completion date: empty

Scientific title
Assessment of Empagliflozin effect on renal outcome in patients with type 2 diabetes mellitus

Public title
Effect of Empagliflozin in diabetic nephropathy

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Patient with type 2 diabetes over the age of 18 years
GFR<60 or albuminuria

**Exclusion criteria:**
- Recent myocardial infarction and PCI
- Dialysis in the last ninety days
- GFR<30
- Renal failure for reasons other than diabetes
- Recurrent urinary tract infections
- History of amputation due to diabetes
- Bladder cancer
- Active diabetic foot ulcer
- Type 1 diabetes
- Pregnancy and lactation
- Major surgery performed in the last 28 days

**Age**
- From 18 years old

**Gender**
- Both

**Phase**
- 3

**Groups that have been masked**
- Participant
- Care provider
- Investigator

**Sample size**
- Target sample size: 96

**Randomization (investigator's opinion)**
- Randomized

**Randomization description**
- Number of 96 patients with diabetic nephropathy (GFR<60 or albuminuria >300) and inclusion criteria are selected then randomization is done by block method (Block stratified randomization). So that first all 4 blocks which include two codes A and B (drug and placebo) are prepared (4 non identical block arrangements and a total of 24 blocks) then random tables of random blocks are selected using placement. These blocks form a sample-sized sequence of codes A and B, each of which is randomly and confidentially and without considering the patients conditions ,is given to the doctor by the clinic secretary for prescription to the patient. The list of relevant codes will remain with the clinic secretary until the completion of the project. This method will provide both blinding and randomization.

**Blinding (investigator's opinion)**
- Double blinded

**Blinding description**
- Participating patients were randomized by block method (block stratified randomization) and patients before entering the study would be informed and satisfied that in addition to the main treatment of glycemic control (metformin and/or insulin), accidentally and without their knowledge of the type of drug, will receive empagliflozin or placebo. Placebo and Empagliflozin would be designed identical and would be packed unanimously in identical boxes so patients in both groups will not be informed of their medication. One of the research team members would dedicate either placebo or Empagliflozin to patients (The first blinding step). Also, the researcher (physician) and the person who followed the patient's symptoms and conditions for months and records them, does not know the type of drug prescribed (A or B) (The second blinding step).

**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**
      - Shahid Shahriari Square, Daneshjou Boulevard, Shahid Chamran Highwa
    - **City**
      - Tehran
    - **Province**
      - Tehran
    - **Postal code**
      - 1983969411
  - **Approval date**
    - 2021-09-06, 1400/06/15
  - **Ethics committee reference number**
    - IR.SBMU.MSP.REC.1400.320

**Health conditions studied**

- **1**
  - **Description of health condition studied**
    - Nephropathy and proteinuria in diabetic nephropathy patients taking empagliflozin
  - **ICD-10 code**
    - E08.21
  - **ICD-10 code description**
    - Diabetes mellitus due to underlying condition with diabetic nephropathy

**Primary outcomes**

- **1**
  - **Description**
    - Body mass index (BMI)
  - **Timepoint**
    - Weeks 0-12-24-48
  - **Method of measurement**
    - Weight in kilograms divided by height squared in meters

- **2**
  - **Description**
    - Evaluation of glycated hemoglobin or long-term blood sugar
  - **Timepoint**
    - Weeks 0-12-24-48
  - **Method of measurement**
    - Using the laboratory kit
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Timepoint</th>
<th>Method of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Fasting blood sugar measurement</td>
<td>Weeks 0-12-24-48</td>
<td>Using the laboratory kit</td>
</tr>
<tr>
<td>4</td>
<td>Measurement of glomerular filtration level for indirect evaluation of kidney status</td>
<td>Weeks 0-12-24-48</td>
<td>Using the laboratory kit</td>
</tr>
<tr>
<td>5</td>
<td>Measurement of urinary albumin / creatinine ratio</td>
<td>Weeks 0-12-24-48</td>
<td>Using the laboratory kit</td>
</tr>
<tr>
<td>6</td>
<td>Plasma creatinine measurement</td>
<td>Weeks 0-12-24-48</td>
<td>Using the laboratory kit</td>
</tr>
<tr>
<td>7</td>
<td>Measurement of urine albumin concentration</td>
<td>Weeks 0-12-24-48</td>
<td>Using the laboratory kit</td>
</tr>
<tr>
<td>8</td>
<td>Systolic and diastolic blood pressure</td>
<td>Weeks 0-12-24-48</td>
<td>Barometer on the sphygmomanometer</td>
</tr>
<tr>
<td>9</td>
<td>Duration of diabetes</td>
<td>Week 0</td>
<td>Using questionnaire</td>
</tr>
<tr>
<td>10</td>
<td>Evaluation of aspartate aminotransferase level for evaluation of liver function</td>
<td>Weeks 0-12-24-48</td>
<td>Using the laboratory kit</td>
</tr>
<tr>
<td>11</td>
<td>Evaluation of alanine aminotransferase level for evaluation of liver function</td>
<td>Weeks 0-12-24-48</td>
<td>Using the laboratory kit</td>
</tr>
<tr>
<td>12</td>
<td>Measurement of blood alkaline phosphatase level for evaluation of hepatic function</td>
<td>Weeks 0-12-24-48</td>
<td>Using the laboratory kit</td>
</tr>
<tr>
<td>13</td>
<td>Measurement of blood triglyceride levels</td>
<td>Weeks 0-12-24-48</td>
<td>Using the laboratory kit</td>
</tr>
<tr>
<td>14</td>
<td>Patient quality of life</td>
<td>Weeks 0-12-24-48</td>
<td>Using questionnaire</td>
</tr>
<tr>
<td>15</td>
<td>Measurement of blood cholesterol levels</td>
<td>Weeks 0-12-24-48</td>
<td>Using the laboratory kit</td>
</tr>
<tr>
<td>16</td>
<td>Measurement of blood LDL levels</td>
<td>Weeks 0-12-24-48</td>
<td>Using the laboratory kit</td>
</tr>
</tbody>
</table>
Using the laboratory kit

17
Description
Measurement of blood HDL levels
Timepoint
Weeks 0-12-24-48
Method of measurement
Using the laboratory kit

18
Description
Insulin consumption
Timepoint
Weeks 0-12-24-48
Method of measurement
Using questionnaire

19
Description
Metformin consumption
Timepoint
Weeks 0-12-24-48
Method of measurement
Using questionnaire

20
Description
Angiotensin receptor blocker or Angiotensin converting enzyme inhibitors consumption
Timepoint
Weeks 0-12-24-48
Method of measurement
Using questionnaire

Secondary outcomes

1
Description
Lower limb edema
Timepoint
Weeks 0-12-24-48
Method of measurement
Questionnaire

2
Description
Complications and cardiac events
Timepoint
Weeks 0-12-24-48
Method of measurement
Questionnaire

3
Description
Incident of brain stroke

Timepoint
Weeks 0-12-24-48
Method of measurement
Questionnaire

Intervention groups

1
Description
Intervention group: Receive 10 mg Empagliflozin tablets (Gloripa brand, Abidi Pharmaceutical Company,) one daily for 48 weeks in addition to the previous standard treatment(metformin and/or insulin)
Category
Treatment - Drugs

2
Description
Control group: Receive placebo tablets one daily for 48 weeks in addition to the previous standard treatment(metformin and/or insulin)
Category
Placebo

Recruitment centers

1
Recruitment center
Name of recruitment center
Imam Hosein hospital
Full name of responsible person
Almas khatami zenozian
Street address
Shahid Madani Ave,Imam Hosein hospital
City
Tehran
Province
Tehran
Postal code
1617763141
Phone
+98 21 7343 0000
Email
Almaskhatami@gmail.com

Sponsors / Funding sources

1
Sponsor
Name of organization / entity
Shahid Beheshti University of Medical Sciences
Full name of responsible person
Dr Shayesteh khalili
Street address
Shahid Shahriari Square, Daneshjou Boulevard
City
Tehran
Province
Person responsible for general inquiries

Contact
Name of organization / entity
Shahid Beheshti University of Medical Sciences
Full name of responsible person
Almas khatami zenozian
Position
Resident
Latest degree
Medical doctor
Other areas of specialty/work
Internal Medicine
Street address
Shahid Madani Ave, Imam Hosein hospital
City
Tehran
Province
Tehran
Postal code
1617763141
Phone
+98 21 7343 0000
Email
Almaskhatami@gmail.com

Person responsible for scientific inquiries

Contact
Name of organization / entity
Shahid Beheshti University of Medical Sciences
Full name of responsible person
Shayesteh khalili
Position
Associate professor
Latest degree
Subspecialist
Other areas of specialty/work
Internal Medicine
Street address
Shahid Madani Ave, Imam Hosein hospital
City
Tehran
Province
Tehran
Postal code
1617763141
Phone
+98 21 7343 0000
Email
khalili.shayesteh@yahoo.com

Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
No
Title of funding source
Shahid Beheshti University of medical sciences
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
Persons

Person responsible for updating data

Contact
Name of organization / entity
Shahid Beheshti University of Medical Sciences
Full name of responsible person
Almas khatami zenozian
Position
Resident
Latest degree
Medical doctor
Other areas of specialty/work
Internal Medicine
Street address
Shahid Madani Ave, Imam Hosein hospital
City
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Postal code
1617763141
Phone
+98 21 7343 0000
Email
Almaskhatami@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
Yes - There is 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
At the end of the study and after the results are published, information about the study protocol, how to analyze the data, and the main outcomes are shared.

**When the data will become available and for how long**

6 months after publishing the results

**To whom data/document is available**

Researchers working in academia and in the drug industries

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

Any analysis and use of the data and documentation submitted will be conditional with informing project executor and her consent.

**From where data/document is obtainable**

Refer to Dr. Almas khatami zenozian, principal Executor, for the documentation. Email: almaskhatami@gmail.com

Affiliations: Faculty of Medicine, Shahid Beheshti University of Medical Sciences

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

The applicant should send an application to Dr. Almas khatami zenozian by email and she will respond as soon as possible after reviewing and consulting with other project members

**Comments**