Clinical trial results:
Empagliflozin in Post-Transplantation Diabetes Mellitus
Summary

EudraCT number	2016-001580-37
Trial protocol	AT
Global end of trial date	07 June 2019

Results information

Result version number	v1 (current)
This version publication date	28 June 2021
First version publication date	28 June 2021

Trial information

Trial identification

Sponsor protocol code	EMPTRA-PTDM

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT03113110
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	Medical University of Vienna
Sponsor organisation address	Währinger Gürtel 18-20, Vienna, Austria, 1090
Public contact	Clinical Trials Information, Medical University of Vienna, +43 0140400 55930, manfred.hecking@meduniwien.ac.at
Scientific contact	Clinical Trials Information, Medical University of Vienna, +43 0140400 55930, manfred.hecking@meduniwien.ac.at

Notes:

Paediatric regulatory details

Is trial part of an agreed paediatric investigation plan (PIP)	No
Does article 45 of REGULATION (EC) No 1901/2006 apply to this trial?	No
Does article 46 of REGULATION (EC) No 1901/2006 apply to this trial?	No

Notes:

Results analysis stage

Analysis stage	Final
Date of interim/final analysis	05 January 2019
Is this the analysis of the primary completion data?	Yes
Primary completion date	20 November 2018
Global end of trial reached?	Yes
Global end of trial date	07 June 2019
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

To assess whether monotherapy with empagliflozin has the same efficacy in controlling hyperglycaemia as standard basal insulin therapy (not succeeding 40 IE/day) in kidney transplanted patients with PTDM, as judged by 2-hour glucose levels during an oral glucose tolerance test (OGTT).

Protection of trial subjects:

glycemic profiles, regularly monitoring of adverse events

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	13 January 2017
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	Yes

Notes:

Population of trial subjects

Subjects enrolled per country

Country: Number of subjects enrolled	Austria: 14
Worldwide total number of subjects	14
EEA total number of subjects	14

Notes:

Subjects enrolled per age group

In utero	0
Preterm newborn - gestational age < 37 wk	0
Newborns (0-27 days)	0
Infants and toddlers (28 days-23 months)	0
Children (2-11 years)	0
Adolescents (12-17 years)	0
Adults (18-64 years)	12
From 65 to 84 years	2
85 years and over	0

Subject disposition

Recruitment
Recruitment details: -

Pre-assignment
Screening details: -

Pre-assignment period milestones	
Number of subjects started	14
Number of subjects completed	14

Period 1	
Period 1 title	Overall trial (overall period)
Is this the baseline period?	Yes
Allocation method	Non-randomised - controlled
Blinding used	Not blinded

Arms	
Arm title	Treatment

Arm description:

Patients have been switched from stable insulin therapy to SGLT-2 inhbititor

Arm type	Active comparator
Investigational medicinal product name	Empagliflozin
Investigational medicinal product code	EMEA/H/C/002677
Other name	
Pharmaceutical forms	Tablet
Routes of administration	Oral use

Dosage and administration details:

10mg once daily in the morning

Number of subjects in period 1	Treatment
Started	14
Completed	8
Not completed	6
Adverse event, non-fatal	6

Baseline characteristics

Reporting groups

Reporting group title	Overall trial

Reporting group description: -

Reporting group values	Overall trial	Total	
Number of subjects	14	14	
Age categorical Units: Subjects			
Adults (18-64 years)	12	12	
From 65-84 years	2	2	
Gender categorical Units: Subjects			
Female	7	7	
Male	7	7	

Subject analysis sets

Subject analysis set title	Treatment
Subject analysis set type	Per protocol

Subject analysis set description:

We chose the intraindividual difference in the 2hour glucose level between the first OGTT (baseline) and the second OGTT as the primary study end point. We judged an average change of 30 mg/dL to be clinically meaningful, thereby suggesting noninfe riority of the empagliflozin treatment if the 2hour blood glucose during the second OGTT did not show an increase of >30 mg/ dL.

Subject analysis set title	COntrol
Subject analysis set type	Per protocol

Subject analysis set description:

We chose the intraindividual difference in the 2hour glucose level between the first OGTT (baseline) and the second OGTT as the primary study end point. We judged an average change of 30 mg/dL to be clinically meaningful, thereby suggesting noninfe riority of the empagliflozin treatment if the 2hour blood glucose during the second OGTT did not show an increase of >30 mg/ dL.

Reporting group values	Treatment	COntrol	
Number of subjects	14	14	
Age categorical Units: Subjects			
Adults (18-64 years)	12	12	
From 65-84 years	2	2	
Gender categorical Units: Subjects			
Female	7	7	
Male	7	7	

End points

End points reporting groups

Reporting group title	Treatment

Reporting group description:

Patients have been switched from stable insulin therapy to SGLT-2 inhbititor

Subject analysis set title	Treatment
Subject analysis set type	Per protocol

Subject analysis set description:

We chose the intraindividual difference in the 2hour glucose level between the first OGTT (baseline) and the second OGTT as the primary study end point. We judged an average change of 30 mg/dL to be clinically meaningful, thereby suggesting noninfe riority of the empagliflozin treatment if the 2hour blood glucose during the second OGTT did not show an increase of >30 mg/ dL.

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Primary: 2-hour glucose difference between the first and the second Oral glucose tolerance test

End point title	2-hour glucose difference between the first and the second Oral glucose tolerance test

End point description:

End point type	Primary

End point timeframe:

4 weeks

End point values	Treatment	COntrol		
Subject group type	Subject analysis set	Subject analysis set		
Number of subjects analysed	14	14		
Units: mg/dL				
arithmetic mean (standard deviation)	232 (± 82)	273 (± 116)		

Statistical analyses

Statistical analysis title	Mean Difference and Standarddeviation

Statistical analysis description:

We summarized numerical data as means ± standard deviation or me dians with interquartile ranges (IQRs), depending on their distribution. For value comparisons of ordinal and numerical data (primary and sec ondary outcomes), we used the Wilcoxon signed rank test for depend ent samples or the paired Student t test, if data were approximately normally distributed. For nominal parameters, we used the McNemar test for paired samples.
A P < .05 was considered statisti cally significant. For calc

Comparison groups	Treatment v COntrol

Number of subjects included in analysis	28
Analysis specification	Pre-specified
Analysis type	non-inferiority
P-value	< 0.05
Method	t-test, 2-sided
Parameter estimate	Mean difference (final values)

Adverse events

Adverse events information[1]

Timeframe for reporting adverse events:

17.03.2017-10.05.2017

Assessment type	Non-systematic

Dictionary used

Dictionary name	MedDRA
Dictionary version	20.0

Reporting groups

Reporting group title	Overall trial

Reporting group description: -

Notes:

[1] - There are no non-serious adverse events recorded for these results. It is expected that there will be at least one non-serious adverse event reported.
Justification: There were no serious adverse events

Serious adverse events	Overall trial		
Total subjects affected by serious adverse events			
subjects affected / exposed	5 / 14 (35.71%)		
number of deaths (all causes)	0		
number of deaths resulting from adverse events	0		
Renal and urinary disorders			
Rejection and Drop in GFR			
subjects affected / exposed	1 / 14 (7.14%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Infections and infestations			
Respiratory Infection	Additional description: Respiratory infection required antibiotic treatment and hospitalization		
subjects affected / exposed	2 / 14 (14.29%)		
occurrences causally related to treatment / all	0 / 2		
deaths causally related to treatment / all	0 / 0		
Tuberculosis lymph node	Additional description: Requirement of 3x tuberculostatic therapy		
subjects affected / exposed	1 / 14 (7.14%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Erysipelas			
subjects affected / exposed	1 / 14 (7.14%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		

Frequency threshold for reporting non-serious adverse events: 4 %

Non-serious adverse events	Overall trial		
Total subjects affected by non-serious adverse events subjects affected / exposed	0 / 14 (0.00%)		

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
09 January 2017	Changes to the protocol with a new Version 6.1. 27.12.2016 - Change in Titel - Change in CRF, including now blood glucose protocol and urinary analysis protocol - Including the collection of a blood sample for Renin Angiotensin System Analysis - Including Body composite measurements (BCM) - Patients will be included until a eGFR of 30ml/min./1.73 m2), study medication will be stopped if GFR droppes below 15 ml/min

Notes:

Interruptions (globally)

Were there any global interruptions to the trial? No

Limitations and caveats

None reported