An intervention to examine the effect of vitamin D on urine protein levels in type 2 diabetes

Submission date	Recruitment status No longer recruiting	Prospectively registered		
10/04/2017		[X] Protocol		
Registration date	Overall study status Completed Condition category	Statistical analysis plan		
07/06/2017		☐ Results		
Last Edited		Individual participant data		
19/04/2018	Nutritional, Metabolic, Endocrine	Record updated in last year		

Plain English summary of protocol

Background and study aims

Type 2 diabetes mellitus (T2DM) is a long term condition where a person is unable to control their blood sugar (glucose) levels as they do not produce enough insulin to function properly (insulin deficiency), or that the body's cells don't react to insulin as they should do (insulin resistance). Diabetic kidney disease (nephropathy) develops in nearly 40% of patients with type 2 diabetes (T2DM). Diabetic nephropathy is caused by damage to the tiny blood vessels in the kidneys due to uncontrolled blood sugar levels, which mean that the kidneys become less effective at filtering urine. This is associated with albuminuria (protein in the urine). Treatment with some drugs reduces the loss of albumin through the urine and delays disease progression. There is increasing evidence that vitamin D could also be important in management of diabetic kidney disease. The aim of this study is to investigate the efficacy and safety of a combined regimen of calcitriol (active vitamin D) and established drugs for diabetic kidney disease

Who can participate?
Type 2 diabetic adults with albuminuria

What does the study involve?

Participants are randomly allocated to one of two groups. All participants are being treated with medication to control their blood pressure. Those in the first group receive this usual treatment only, and those in the second group are also treated with additional vitamin D tablets for 26 weeks. At the start of the study and then after 26 weeks, participants provide urine samples to assess the amount of protein in their urine as well as tests to assess how well they are controlling their diabetes and general health.

What are the possible benefits and risks of participating?

Participants benefit from receiving regular contact with the research team which could improve the effectiveness of their condition. The risks associated with taking part in this study are minimal as the study uses methods and approaches that are already used daily in clinical practice to care for patients with diabetic kidney disease. Also, there will be close follow-up in the clinic with specific advice to avoid any potential problems.

Where is the study run from? Hamad Medical Corporation (Qatar)

When is the study starting and how long is it expected to run for? April 2017 to April 2018

Who is funding the study? Qatar National Research Fund (Qatar)

Who is the main contact?

1. Professor Shahrad Taheri (scientific) szt2004@qatar-med.cornell.edu

2. Dr Muhammad Asim (scientific)

Contact information

Type(s)

Scientific

Contact name

Prof Shahrad Taheri

ORCID ID

http://orcid.org/0000-0001-8314-1500

Contact details

Weill Cornell Medicine - Qatar Doha Qatar 24144 +974 (0)4492 8998 szt2004@gatar-med.cornell.edu

Type(s)

Scientific

Contact name

Dr Muhammad Asim

Contact details

Hamad Medical Corporation Doha Qatar 3050

Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

NCT03216564

Secondary identifying numbers

1400039

Study information

Scientific Title

Intervention using vitamin D for Elevated urinary ALbumin in diabetes (IDEAL-2)

Acronym

IDEAL-2

Study objectives

Active vitamin D (1,25-dihydroxycholecalciferol (calcitriol), added to inhibition of the renin angiotensin aldosterone system (RAAS), via angiotensin converting enzyme inhibition or angiotensin receptor blockade, results in superior reduction in urine albumin excretion in type 2 diabetes mellitus (T2DM) compared to RAAS inhibition alone.

Ethics approval required

Old ethics approval format

Ethics approval(s)

- 1. Weill Cornell Medicine, Qatar Institutional Review Board, 09/01/2017, ref: 14-00039
- 2. Hamad Medical Corporation, Qatar, Institutional Review Board, 23/06/2016, ref: 16235/16

Study design

Single-centre open-label randomised controlled trial

Primary study design

Interventional

Secondary study design

Randomised controlled trial

Study setting(s)

Hospital

Study type(s)

Treatment

Participant information sheet

Not available in web format, please use the contact details to request a patient information sheet

Health condition(s) or problem(s) studied

Diabetic nephropathy

Interventions

Enrolled subjects, who are clinically optimised with an angiotensin converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB), will be randomised to one of two groups.

Usual Care: Participants are treated with ACEI/ARB alone for 26 weeks.

Intervention Group: Participants are treated with ACEI/ARB AND active vitamin D (Calcitriol) 0.25 micrograms orally per day for 26 weeks.

Participants are followed up after 26 weeks.

Intervention Type

Drug

Phase

Phase III

Drug/device/biological/vaccine name(s)

Calcitriol

Primary outcome measure

Urinary albumin creatinine ratio (ACR) measured biochemically at baseline and 26 weeks

Secondary outcome measures

- 1. 24-hour urine albumin (24h UA) excretion is measured biochemically at baseline and 26 weeks
- 2. Estimated glomerular filtration rate (eGFR) calculated using the Modification of Diet in Renal Disease (MDRD) equation at baseline and 26 weeks
- 3. Blood pressure is measured using a digital sphygmomanometer at baseline and 26 weeks

Tertiary outcome measures

- 1. Anthropometry and body composition measures are completed using Tanita bioimpedance scales at baseline and 26 weeks
- 2. Diabetes control is measured biochemically using glycated haemoglobin at baseline and 26 weeks
- 3. Cardiovascular function is assessed by measuring arterial stiffness using the Vicorder device at baseline and 26 weeks
- 4. Diabetic eye disease incidence is measured using retinal photographyat baseline and 26 weeks
- 5. Diabetic neuropathy incidence is measured using a diabetic neuropathy questionnaire and clinical examination at baseline and 26 weeks
- 6. Autonomic nervous system function is measured at baseline and 26 weeks
- 7. Obstructive sleep apnoea incidence is measured using the apnoea-hypopnoea index at baseline and 26 weeks
- 8. Sleepiness is measured using the Epworth Sleepiness Scale at baseline and 26 weeks
- 9. Quality of life is measured using the EQ5D questionnaire at baseline and 26 weeks

Overall study start date

10/05/2016

Completion date

10/05/2019

Eligibility

Key inclusion criteria

- 1. Age greater than or equal to 18 years and less than 80 years
- 2. Diagnosis of T2DM requiring treatment with at least one oral hypoglycaemic medication or insulin
- 2.1. Subjects will be considered to have established T2DM if the diagnosis of diabetes has been made and the subjects were treated with insulin or an oral hypoglycaemic agent for at least 6 months after diagnosis
- 2.2. Subjects will be considered to have newly established T2DM if the diagnosis of diabetes was diagnosed with a fasting plasma glucose \geq 7 mmol/L (126 mg/dL) or haemoglobin A1c is >6.5% in the past 6 months
- 3. Documented albuminuria defined as a presence of albuminuria on two occasions in the last six months:
- 3.1. Albumin \geq 30 mg/24 hour in a 24 hour urine collection, or
- 3.2. Albumin \geq 20 µg/min in a short-time urine collection, or
- 3.3. Albumin \geq 30 mg/L in a spot urine sample, or
- 3.4. A spot-urine albumin-creatinine ration (ACR) \geq 30 mg/g creatinine (\geq 2.5 mg/mmol creatinine in men, \geq 3.5 mg/mmol creatinine in women)
- 4. Estimated glomerular filtration rate (eGFR) using the 4-variable Modification of Diet in Renal Disease (MDRD) equation of \geq 25 mL/min/1.73 m2

Participant type(s)

Patient

Age group

Adult

Lower age limit

18 Years

Sex

Both

Target number of participants

320

Key exclusion criteria

- 1. If female, positive pregnancy test or planning pregnancy in the subsequent 12 months
- 2. Pregnant
- 3. Breastfeeding
- 4. Corrected serum calcium ≥ 2.62 mmol/L
- 5. Serum Potassium > 5.2 mmol/L if not on ACEI or ARB; Serum Potassium > 6.0 mmol/L if on ACEI or ARB
- 6. 25-hydroxyvitamin D (25-OH Vit D) > 80 ng/mL
- 7. PTH > 200 pg/mL
- 8. Poorly controlled hypertension defined as systolic blood pressure \geq 180 mm Hg or diastolic blood pressure \geq 110 mm Hg
- 9. Systolic blood pressure (SBP) ≤ 110 mm Hg
- 10. History of kidney stones

- 11. History of severe chronic disease (e.g. chronic liver disease)
- 12. Active malignancy
- 13. Recent diagnosis of acute renal failure within 3 months of screening visit
- 14. Likelihood of renal replacement therapy within 1 year

Date of first enrolment

10/04/2017

Date of final enrolment

10/10/2018

Locations

Countries of recruitment

Qatar

Study participating centre Hamad Medical Corporation

Al Rayyan Road Doha Qatar 24144

Sponsor information

Organisation

Hamad Medical Corporation

Sponsor details

Hamad General Hospital Doha Qatar 3050

Sponsor type

Hospital/treatment centre

ROR

https://ror.org/02zwb6n98

Funder(s)

Funder type

Research organisation

Funder Name

Qatar National Research Fund

Alternative Name(s)

, QNRF

Funding Body Type

Private sector organisation

Funding Body Subtype

Trusts, charities, foundations (both public and private)

Location

Qatar

Results and Publications

Publication and dissemination plan

Planned publication of findings in a high-impact peer reviewed journal.

Intention to publish date

01/05/2019

Individual participant data (IPD) sharing plan

The current data sharing plans for the current study are unknown and will be made available at a later date.

IPD sharing plan summary

Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol article	protocol	17/04/2018		Yes	No