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A randomised feasibility trial of high water intake in polycystic kidney disease (DRINK)

Submission date
02/11/2016

Recruitment status
No longer recruiting

Registration date
23/11/2016

Overall study status
Completed

Last Edited
20/05/2019

Condition category
Genetic Diseases

[_] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[_] Record updated in last year

Plain English summary of protocol

Background and study aims
Autosomal dominant polycystic kidney disease (ADPKD) is an inherited condition where the sufferer develops many cysts (fluid filled sacs) in their kidneys. These cysts are non-cancerous, but over the years they grow in size and number causing health problems. By the age of 30-50 years most people with the condition will have high blood pressure and long-term kidney disease. Half of those affected will have kidney failure that needs either dialysis or a kidney transplant by the age of 60 years. It is common, affecting approximately 1 in every 800 people in the United Kingdom. Vasopressin is a hormone produced by the brain. Its role is to maintain the body's water balance. In states of dehydration it acts on the kidneys to conserve water and produce concentrated urine. If the body is well hydrated, the body stops making vasopressin and dilute urine is produced. Research has shown that in polycystic kidney disease, the vasopressin hormone acts in an abnormal way. It drives the cysts to grow, so there are many more cysts and causes more fluid to collect inside them so they grow even bigger. Therefore, stopping vasopressin production through high water intake could slow the progression of ADPKD.

Who can participate?
Patients with ADPKD aged 16 years and over.

What does the study involve?
Participants are randomly allocated to one of two groups. Those in the first group are given a personalised daily water prescription (usually between 2-4 litres), to produce dilute enough urine to stop vasopressin being made by the body for eight weeks. Those in the second group are asked to continue to drink as they normally would for eight weeks. Participants in both groups attend appointments five times over the course of the eight week study and then four weeks afterwards. At these visits, participants have a medical and dietary review, blood and urine tests, and are asked to complete a questionnaire.

What are the possible benefits and risks of participating?
There are no direct benefits or risks involved with participating in this study.

Where is the study run from?
Addenbrookes Hosital (UK)

When is the study starting and how long is it expected to run for?
February 2016 to April 2018

Who is funding the study?
British Renal Society (UK)

Who is the main contact?
Dr Ragada El-Damanawi
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Contact information

Type(s)
Scientific

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number
NCT02933268

Secondary identifying numbers
31605

Study information

Scientific Title
Determining feasibility of Randomisation to high vs. ad libitum water Intake in Polycystic Kidney Disease: the DRINK randomised feasibility trial

Acronym
DRINK

Study objectives
The aim of this study is to determine whether giving participants a daily prescription for water intake, aimed at achieving dilute urine at a threshold that will stop vasopressin production by the body, is safe, sustainable and well tolerated by participants.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Research Ethics Committee East of England, 11/07/2016, ref: 16/EE/0236

Study design
Randomised; Interventional; Design type: Treatment, Prevention, Education or Self-Management, Dietary, Active Monitoring

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Hospital

Study type(s)
Treatment

Participant information sheet
See additional files

Health condition(s) or problem(s) studied
Specialty: Renal disorders, Primary sub-specialty: Renal disorders; UKCRC code/ Disease: Renal and Urogenital/ Other disorders of kidney and ureter

Interventions
Participants will be randomly assigned (1:1) to one of two groups.

Prescribed water intake (Group HW): Each participant has an individualised daily water prescription based on the free water clearance formula. They will be monitored throughout and if they are not achieving urine osmolality <270mosom/kg the water prescription will be adjusted further.

Ad libitum water intake (Group AW): Participants will be allowed to drink water as guided by thirst, patients who consume large quantities will be encouraged to reduce excessive water intake in a supervised manner aiming for a urine osmolality > 300mosom/kg.

Participants in both groups will have five face-to-face visits, with an additional end of trial visit at 12 weeks. During each visit they will undergo interview, targeted physical examination (fluid assessment, vital signs and weight), routine biochemistry and urine tests for osmolality and specific gravity (SG). They will be required to provide 24-hour urine collections at the screening visit, week 2 and week 8. This will guide adjustments to water prescription in the intervention

group, and provide some information about the degree of correlation of measured urine osmolality with urine SG.

Participants will be taught how to measure their own urine SG by stick testing. They will receive an SMS text twice weekly prompting them to measure their urine SG and input the result into the smartphone application, this will help guide their fluid prescription further and ensure they are meeting their urine dilution targets.

Intervention Type
Other

Primary outcome measure
Proportion of patients achieving a urine osmolality < 270 mOsm/kg is measured using 24 hour urine collections at screening, weeks 2, 8 and 12.

Secondary outcome measures
1. Urine osmolality is measured using 24 hour urine collections at screening, weeks 2, 8 and 12
2. Proportion of participants that can self-monitor and report urine specific gravity reliably is measured using home monitoring of urine dipstick testing twice weekly (Monday and thursday) from weeks 0-8
3. Proportion of patients experiencing a serious adverse event is measured using participant reported symptoms, clinic visits, and blood tests at weeks 0, 2, 4, 8 and 12
4. Estimated GFR is measured using blood test at screening, then weeks 0, 2, 4, 8 and 12
5. Health-Related Quality of Life is measured using the EQ5D-5L questionnaire at week 0 then week 12
6. Recruitment rate is measured using the number of participants recruited each month

Overall study start date
01/02/2016

Completion date
01/04/2018

Eligibility

Key inclusion criteria
1. Have given written informed consent to participate
2. Aged 16 years or older
3. Have a diagnosis of ADPKD (fulfilling radiological diagnostic criteria ± genetic evidence)
4. eGFR ≥ 20ml/min/1.73m2
5. Able to self-monitor urine SG

Participant type(s)
Patient

Age group
Adult

Sex
Both

Target number of participants
Planned Sample Size: 50; UK Sample Size: 50

Key exclusion criteria
1. Inability to provide informed consent
2. eGFR < 20ml/min
3. Fluid overload states e.g. heart failure, cirrhosis, or requirement for fluid restriction
4. Confounding illness impacting on renal disease e.g. concomitant diabetes or glomerulonephritis
5. Treatment with diuretics for fluid overload (those on diuretics for hypertension may participate in the trial after a run-in period of 2 weeks)
6. Treatment with Tolvaptan in the last 4 weeks
7. Pregnancy or breastfeeding

Date of first enrolment
27/09/2016

Date of final enrolment
01/01/2018

Locations

Countries of recruitment
England

United Kingdom

Study participating centre
Addenbrookes Hosital
Hills Road
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Sponsor information

Organisation
Cambridge University Hospitals NHS Foundation Trust and University of Cambridge

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Sponsor type
Hospital/treatment centre

ROR
https://ror.org/04v54gj93

Funder(s)

Funder type
Charity

Funder Name
British Renal Society

Alternative Name(s)
BRS

Funding Body Type
Private sector organisation

Funding Body Subtype
Associations and societies (private and public)

Location
United Kingdom

Results and Publications

Publication and dissemination plan
Planned peer review in a high impact peer reviewed journal. Results will also be disseminated via the trial website.

Intention to publish date
01/08/2018

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be stored in a publically available repository [Cambridge Data Repository - http://www.data.cam.ac.uk /repository]

IPD sharing plan summary

Stored in repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	version V1.2	27/07/2016	23/11/2016	No	Yes
Protocol article	protocol	09/05/2018	20/05/2019	Yes	No
HRA research summary			28/06/2023	No	No