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Canadian incremental dialysis to improve health outcomes in people starting hemodialysis

Submission date
02/06/2023

Recruitment status
Recruiting

Registration date
15/07/2023

Overall study status
Ongoing

Last Edited
30/06/2023

Condition category
Digestive System

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

Plain English summary of protocol

Background and study aims
Kidney failure is a growing public health problem and is fatal unless treated with dialysis or transplantation. The number of patients on dialysis in Canada nearly doubled over 20 years, now with over 23,000 individuals on dialysis. Hemodialysis (HD) is the most common kidney failure treatment globally and in Canada. It is associated with poor survival (<50% 5-year survival), high symptom burden and the poorest quality of life of any chronic disease (<60% of full health). Each year, in Ontario alone, over 2,300 patients with kidney failure start HD.
The first 6 months of hemodialysis can be challenging and may have side effects that impact quality of life. The current practice is for patients to start hemodialysis with three sessions per week. It is unknown whether this schedule is ideal for all patients.
Starting hemodialysis twice a week has been proposed as an alternative to the conventional hemodialysis start (three times a week). Although some international clinical trials show that this approach is safe and effective, these trials did not look at the impact of hemodialysis frequency on quality of life, which patients identify as an important outcome.

Who can participate?
Patients aged 18 years and over with kidney failure requiring hemodialysis from research sites located in Australia, New Zealand, and Canada

What does the study involve?
Each participant is put into a group by chance (random). There is a 50:50 chance allocation to either the intervention group (hemodialysis twice weekly) or the control group (hemodialysis three times a week). Participants are allocated the week before HD start or before the second required HD session after HD start. Following baseline data collection, there will be monthly follow-up per routine clinical care for 18 months. Quality-of-life data will be captured via mobile devices during HD sessions using QR codes. An optional administrative data linkage for outcomes occurring throughout the 18 months of each participant in the study will occur after all participants have completed the study.

What are the possible benefits and risks of participating?
Participants in the control group will have the same risks as any dialysis patient receiving thrice-weekly dialysis. For participants in the intervention group, the potential risks include:

1. Increased fluid can lead to swelling in the legs and feet and shortness of breath; in severe cases, it could lead to heart failure.
2. High potassium is often associated with no signs or symptoms but participants can feel lightheaded or feel their heart racing. In severe cases, it can lead to irregular heartbeats and even sudden deaths.
The severity of signs and symptoms for both increased fluid and potassium levels may depend on how much participants drink and how much kidney function they have. These signs and symptoms are the same irrespective of if participants are not on dialysis (predialysis) or on thrice-weekly dialysis.
The potential benefit for all participants would be knowing that they are contributing to medical science and that the outcome of the study will help inform future management of patients with kidney disease who need to start dialysis.

Where is the study run from?
University Health Network (UHN) - Toronto General Hospital (Canada)

When is the study starting and how long is it expected to run for?
September 2021 to December 2028

Who is funding the study?
Canadian Institutes of Health Research (Canada)

Who is the main contact?
Dr Charmaine Lok, charmaine.lok@uhn.ca

Contact information

Type(s)
Principal Investigator

Contact name
Dr Charmaine Lok

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
Version 1.0

Study information

Scientific Title
CANadian INCremental dialysis to improve Health outcomes in people starting Hemodialysis (CAN INCH-HD) study

Acronym
CAN INCH-HD

Study objectives
It is hypothesized that incremental hemodialysis (HD) is a more appropriate way to start a patient on HD. It may:
1. Reduce ischemic kidney injury (from HD-associated hypotension) and help maintain residual kidney function (a survival benefit)
2. Improve patient quality of life (QOL) (more free time, less HD and travel burden)
3. Be cost-saving to healthcare systems

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 16/05/2023, Provincial Clinical Trials Ontario (CTO) (661 University Avenue, Suite 460, MaRS Centre, West Tower, Toronto, Ontario, M5G 1M1, Canada; +1 (0)416 581 7849; email: not provided), ref: 3993

Study design
International multi-centre randomized-controlled trial with an adaptive sample size strategy and registry-embedded data collection

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Hospital, Other

Study type(s)
Other, Treatment

Participant information sheet
Not available in web format, please use contact details to request a participant information sheet

Health condition(s) or problem(s) studied
Adult patients with end stage kidney disease requiring hemodialysis

Interventions
Experimental Arm
Incremental HD: Participants will initiate HD at a frequency of 2x/week and continue until an indication for an increase to 3x/week (trigger point) is reached. Trigger points include any one of:
1. Weight gain between dialysis sessions requiring volume removal rate >10 ml/kg/h for the last four sessions on maximally tolerated doses of diuretics
2. Pre-dialysis potassium >6.5 mmol/l more than once per month despite dietary counselling and medical management
3. Hospitalization for fluid overload, hyperkalemia, uremic complications (seizure, pericarditis)
4. More than one extra HD session per month for fluid control despite maximal medical and dietary therapy
5. Physician and/or participant discretion (reason will be recorded)

Control Arm
Conventional HD (CHD): Participants will initiate HD at a frequency of 3 x/week. CHD is considered the “standard of care” in most of the world.
Randomization and blinding: will occur the week before HD start or before the second required HD session after HD start.

Minimization will be used to randomize participants 1:1 to either incremental HD or CHD. Central randomization will occur via randomize.net (Ottawa) and co-managed with the Australasian Kidney Trials Network data and statistics staff.

The treatment is by necessity open-label (participants and staff not blinded). However, monitoring staff, central operational staff and outcome assessors will be blinded to the treatment allocation. This is a pragmatic trial with no study visits outside of usual dialysis sessions. Following baseline data collection, there will be monthly participant follow-up, per routine clinical care for 18 months. QOL data will be captured via mobile devices during HD sessions using QR codes. An optional administrative data linkage for outcomes occurring throughout the 18 months of each participant in the study will occur after all participants have completed the study.

Intervention Type
Other

Primary outcome measure
Quality of life (QOL) assessed by the Kidney Disease Quality of Life Short Form (KDQOL-SF 1.3) at 6 months after HD start

Secondary outcome measures
1. Residual kidney function (RKF) (difference in mean of 24-hour urinary urea and creatinine clearances between groups) at baseline, months 3, 6, 12 and 18
2. Anuria: the proportion of patients with anuria (<200 ml urine output/24 h) and time to anuria at baseline, months 3, 6, 12 and 18
3. Safety (time to all-cause mortality; time to first major cardiovascular event [MACE]; number of non-elective hospital admissions and total hospital days; time to death and hospital admissions, episodes of hyperkalemia [≥6.5 mmol/L]; extra HD sessions for fluid overload; vascular access procedures [SONG-HD core outcome]) assessed at monthly visits for 18 months

4. Quality of life measured using monthly EQ-5D-5L and quarterly KDQOL-SF 1.3 (all components) at baseline and monthly for 18 months
5. Symptom scores assessed by KDQOL-SF 1.3 (physical component and mental component summaries) at baseline, months 3, 6, 9, 12, 15, 18
6. Fatigue assessed by SONG-HD core outcome measure at baseline, months 3, 6, 9, 12, 15 and 18
7. Nutritional status assessed by Subjective Global Assessment (SGA) at baseline, months 3, 6, 12 and 18
8. Cost analysis recorded by participants in the Health Care Diary collected at baseline and monthly for 18 months

Overall study start date
15/09/2021

Completion date
31/12/2028

Eligibility

Key inclusion criteria
1. Adults (≥18 years old) starting HD as their initial dialysis therapy
2. Able to give informed consent

Participant type(s)
Patient

Age group
Adult

Lower age limit
18 Years

Sex
Both

Target number of participants
150

Key exclusion criteria
1. Urine output <0.5 l/day
2. Unlikely to be on dialysis for ≥1 year

Since RKF and QOL at 18 months are secondary outcomes, adequate urine output at HD start and likelihood of needing chronic maintenance HD long-term are required.

Date of first enrolment
01/09/2023

Date of final enrolment
01/09/2026

Locations

Countries of recruitment
Australia

Canada

New Zealand

Study participating centre
University Health Network - Toronto General Hospital
200 Elizabeth Street
Toronto
Canada
M5G 2C4

Study participating centre
The Ottawa Hospital
501 Smyth Road
Ottawa
Canada
K1H 8L6

Study participating centre
Scarborough Health Network
3050 Lawrence Avenue East
Scarborough
Canada
M1P 2V5

Study participating centre
London Health Sciences Centre
800 Commissioners Road East
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Study participating centre
Trillium Health Partners - Credit Valley Hospital
2200 Eglington Avenue West
Mississauga

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Study participating centre
Mackenzie Health Hospital
10 Trench Street
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Sponsor information

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Canadian Institutes of Health Research

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Sponsor type
Government

Website
http://www.cihr-irsc.gc.ca/e/193.html

ROR
https://ror.org/01gavpb45

Funder(s)

Funder type
Government

Funder Name
Canadian Institutes of Health Research

Alternative Name(s)

Instituts de Recherche en Santé du Canada, Canadian Institutes of Health Research (CIHR), CIHR_IRSC, Canadian Institutes of Health Research | Ottawa ON, CIHR - Welcome to the Canadian Institutes of Health Research, CIHR, IRSC

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
Canada

Results and Publications

Publication and dissemination plan
The results will be presented at local and international scientific meetings and planned publication in a high-impact peer-reviewed journal.

Intention to publish date
31/12/2029

Individual participant data (IPD) sharing plan
The 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