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Randomised evaluation of sodium dialysate levels on vascular events

Submission date	Recruitment status	[X] Prospectively registered
10/01/2023	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
22/03/2023	Ongoing	[_] Results
Last Edited	**Condition category**	[_] Individual participant data
18/06/2024	Urological and Genital Diseases	[_] Record updated in last year

Plain English summary of protocol

Background and study aims
In the UK 8000 people a year suffer permanent kidney failure and start dialysis. Dialysis sustains life, but at enormous cost, both in terms of healthcare spending and more importantly in terms of poor quality of life and drastically shortened life expectancy. The most common form of dialysis, haemodialysis, cleans the blood and removes excess water, but must be performed three times a week. It is a difficult and unpleasant treatment, with many patients continuing to suffer from excess fluid build-up, swelling, shortness of breath and fatigue. In addition, the build-up of salt (sodium) contributes to the high rates of heart attacks, strokes, and heart failure that affect people receiving long-term dialysis.
Currently, most dialysis centres set the dialysate sodium (the amount of salt in the fluid that washes the blood) between 135 mmol/l and 140 mmol/l and all patients in a given centre will have the same (default) dialysis sodium set on their machines for each session. Small studies suggest that sodium levels closer to the lower end of this range may increase the removal of excess salt from the body and reduce fluid build-up, which in turn may reduce the risks of heart disease and strokes. However, these same studies also suggest that levels closer to the upper end of the range may make the dialysis procedure more stable and lower the chance of blood pressure dropping during the dialysis session. This study will determine if a lower or higher dialysate sodium setting is preferable in terms of improving heart health and life expectancy.

Who can participate?
Dialysis units that mostly dialyse adults (aged 18 years old and over) receiving maintenance haemodialysis

What does the study involve?
Dialysis units are randomly allocated to use either a dialysate sodium of 137mmol/l or a dialysate sodium of 140mmol/l for about 3 years. Using information collected by the NHS and the UK Renal Registry, the number of people at each centre suffering a heart attack, stroke, heart failure, hospitalisation and death will be tracked to determine what is the best sodium setting to use to benefit the greatest number of patients.

What are the possible benefits and risks of participating?
This is a pragmatic study so there are no additional risks to the participants. The benefits are for

forthcoming participants who undergo dialysis as this may provide an accurate national default sodium level.

Where is the study run from?
University College London (UK)

When is the study starting and how long is it expected to run for?
June 2022 to May 2026

Who is funding the study?
National Institute for Health and Care Research (NIHR) (UK)

Who is the main contact?
Dr Rumana Jalil-Rahman, cctu.resolve@ucl.ac.uk

Study website
https://www.resolvetrial.co.uk

Contact information

Type(s)
Scientific

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number
317616

ClinicalTrials.gov number
NCT02823821

Secondary identifying numbers
CPMS 53987, IRAS 317616

Study information

Scientific Title
Randomised Evaluation of SOdium dialysate Levels on Vascular Events

Acronym
RESOLVE

Study objectives
This global study will establish whether treatment with a default dialysate sodium concentration of 137 mmol/l compared with 140 mmol/l reduces major cardiovascular events and death in adult patients receiving haemodialysis in centres employing a default dialysate sodium.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 01/11/2022, South Central - Berkshire Research Ethics Committee (Bristol REC Centre, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN, UK; +44 (0)207 104 8178, +44 (0)207 104 8182; berkshire.rec@hra.nhs.uk), ref: 22/SC/0280

Study design
Randomized; Interventional; Design type: Treatment, Other

Primary study design
Interventional

Secondary study design
Cluster randomised 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
Renal disorders

Interventions
The RESOLVE study will randomly allocate 100 dialysis units across the UK to use either a dialysate sodium of 137mmol/l or a dialysate sodium of 140mmol/l for approximately 3 years. Using information collected by the NHS and the UK Renal Registry, the number of people at each centre suffering a heart attack, stroke, heart failure, hospitalisation and death will be tracked to determine what is the best sodium setting to use to benefit the greatest number of patients.

1. Study posters and patient leaflets will be available in the participating dialysis units. Additional information can be requested from unit staff and a 'Study Information Sheet' will be available. In addition, the study posters and patient leaflets will have a QR code with a link to the RESOLVE UK website where further information will be available about the study.
2. At this point patients can decide to opt out of data collection.
3. If the patient decides to allow data collection, then this visit and future visits to the unit will remain as normal. The duration and timing of dialysis will be unchanged.
4. Baseline data will be collected on patients, who don't opt-out, from existing unit records. This does not require any input from the patients.
5. Site will be randomised.
6. Site will change its machines to use the allocated dialysate sodium as a default.
7. As all study data will be extracted from routine clinical data collection systems or registries (namely the UK Renal Registry and NHS Digital), participants will not be subjected to any additional questionnaires, medical tests, physical examinations or doctor's visits.
8. All patients at the site (regardless of whether they opt out or not) will receive the allocated dialysate sodium per usual unit practice unless their doctor directs that a different sodium dialysate be prescribed. Patients who do not opt out, and who have their dialysate sodium individualised will remain in the study to maximise study generalisability and ensure a valid answer to the primary research question that concerns whether patient outcomes differ between units employing a higher or lower dialysate sodium.

Intervention Type
Other

Phase
Phase IV

Primary outcome measure
The composite of hospitalised myocardial infarction, hospitalised stroke, and all-cause death, all measured using NHS Digital data at annual timepoints

Secondary outcome measures
1. Hospitalised heart failure measured using NHS Digital data at annual timepoints
2. The time between these events (hospitalised acute myocardial infarction, hospitalised stroke, hospitalised heart failure and death) measured using NHS Digital data at annual timepoints
3. Health economics will be performed to calculate potential costs and health-related outcomes in patients undergoing dialysis with a sodium concentration of 137 mmol/l vs sodium concentration of 140 mmol/l over the duration of the study

Overall study start date
01/06/2022

Completion date
01/05/2026

Eligibility

Key inclusion criteria
The principal SITE inclusion criteria are dialysis units that:
1. Predominantly dialyse adults (≥18 years old) receiving maintenance haemodialysis
2. Rates of withdrawal within the first two years of commencing dialysis for social reasons have

been less than 15% for the 2 years prior to recruitment and are not expected to increase above 15%
3. Has a minimum of 10 dialysis recipients at the time of randomisation
4. Utilises a default dialysate sodium concentration at the time of recruitment (i.e. a substantial majority of dialysis sessions are conducted with the default dialysate sodium concentration)
5. Is a self-contained unit (i.e. unit patients do not regularly rotate through another unit. Brief trips by patients to a parent or other unit do not exclude a site). Note: If two or more sites have regularly rotating patients, these sites may be randomised together as a cluster.
6. Willing to accept randomisation to either intervention (as determined by the nominated Director of Unit)
7. Is not a home dialysis training or support unit (sites that include both in-centre or satellite dialysis patients and home patients may participate but the study procedures and assessments will only be conducted in the in-centre/satellite component of the site)

Participant type(s)
Patient

Age group
Adult

Lower age limit
18 Years

Sex
Both

Target number of participants
Planned Sample Size: 100; UK Sample Size: 100

Key exclusion criteria
The principal SITE exclusion criteria are dialysis units that are:
1. Not able to comply with data collection methods

Date of first enrolment
27/03/2023

Date of final enrolment
31/07/2024

Locations

Countries of recruitment
England

United Kingdom

Study participating centre
Royal Free London NHS Foundation Trust
Royal Free Hospital

Pond Street
London
United Kingdom
NW3 2QG

Study participating centre
Barts Health NHS Trust
The Royal London Hospital
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E1 2ES

Sponsor information

Organisation
University College London

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Sponsor type
University/education

Website
http://www.ucl.ac.uk/

ROR
https://ror.org/02jx3x895

Funder(s)

Funder type
Government

Funder Name
NIHR Evaluation, Trials and Studies Co-ordinating Centre (NETSCC); Grant Codes: NIHR134660

Results and Publications

Publication and dissemination plan
Planned publication in a high-impact peer-reviewed journal

Intention to publish date
01/05/2027

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

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			28/06/2023	No	No