A clinical trial looking at maintaining hydration at the end of life

| Submission date | Recruitment status No longer recruiting | [X] Prospectively registered | | |
|-------------------|---|---------------------------------|--|--|
| 10/09/2021 N | | [X] Protocol | | |
| Registration date | Overall study status | [] Statistical analysis plan | | |
| 14/09/2021 | Completed | [_] Results | | |
| Last Edited | Condition category | Individual participant data | | |
| 17/06/2025 | Other | [X] Record updated in last year | | |

Plain English summary of protocol

Background and study aims

The use of clinically-assisted hydration (CAH) in the last days of life is very variable and controversial because there is no good quality research to show whether it improves (or worsens) end-of-life care. In some cases there is a clear indication to start/continue CAH, whilst in other cases there is a clear indication to not start/discontinue CAH. However, in most cases there is no indication one way or another.

The research team has just completed a feasibility (provisional) study, which included 200 cancer patients from hospices/hospitals in England and Wales. The results suggest that CAH may delay the onset of delirium, but that CAH can cause side effects in some patients (e.g. fluid retention). A larger study is needed to properly evaluate the role of CAH. Recently, the Palliative and end-of-life care Priority Setting Partnership (involving patients, carers, patient support groups, members of the general public, and healthcare professionals) concluded that CAH was an important area for research.

The aim is to assess whether giving cancer patients in the last days of life clinically-assisted hydration (or CAH) is effective at preventing them from experiencing "terminal agitation". This is a distressing form of delirium that often occurs at end-of-life causing restlessness, anxiety and confusion in the patient, and which is very upsetting for family members. We will also explore if CAH affects other end-of-life symptoms (e.g. shortness of breath), length of survival and costs.

Who can participate?

Adults aged over 18 years with a life expectancy of less than 1 week

What does the study involve?

The study will be a so-called cluster randomised trial, which means that hospices/hospitals ('clusters') will be randomly allocated to one of two standard (usual) interventions. Intervention A involves supporting the patient to drink, regular mouth care, and management of pain and other symptoms. Intervention B involves supporting the patient to drink, regular mouth care, management of pain and other symptoms, and CAH. All eligible patients within each hospice /hospital will receive the same intervention (if appropriate). 80 hospices/hospitals in the United Kingdom and 1,600 cancer patients in the last week of life will take part in the study. Patients will be given fluids either into a vein or into the tissues under the skin. The amount of fluid given will be based on the patient's weight, and the decision to continue/discontinue the fluids will be

made by doctors.

Patients will be assessed for end-of-life problems every 4 hours by nursing staff, and data will be collected on the presence of problems, use of medication (to treat problems), and side effects of CAH.

What are the possible benefits and risks of participating? None

Where is the study run from? University of Surrey (UK)

When is the study starting and how long is it expected to run for? September 2021 to February 2025

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

Who is the main contact? Prof. Andrew Davies andavies@tcd.ie

Study website https://www.surrey.ac.uk/chelsea-ii-trial

Contact information

Type(s) Scientific

Contact name Prof Andrew Davies

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Additional identifiers

EudraCT/CTIS number Nil known

IRAS number 313640

ClinicalTrials.gov number Nil known

Secondary identifying numbers HTA NIHR131687, IRAS 313640

Study information

Scientific Title

A cluster randomised trial of clinically-assisted hydration in patients in the last days of life -CHELsea II

Acronym CHELsea II

Study objectives

Clinically-assisted hydration (CAH) in the last days of life reduces the frequency of delirium (and the requirement for sedative medication), as a result of preservation of renal function, and prevention of build-up of drugs and toxins. Furthermore, CAH will prevent death due to dehydration occurring before death due to the underlying disease (or its complications).

Ethics approval required

Old ethics approval format

Ethics approval(s)

1. Main: Approved 09/08/2022, London - Brighton & Sussex Research Ethics Committee (Health Research Authority, 2 Redman Place, Stratford, London, E20 1JQ, UK; +44 (0)207 104 8202, +44 (0)207 104 8241; brightonandsussex.rec@hra.nhs.uk), ref: 22/LO/0475

2. Scotland: Approved 09/09/2022, Scotland A Research Ethics Committee (South East Scotland Research Ethics, Service, 2nd Floor, Waverley Gate, 24 Waterloo Place, Edinburgh, EH1 3EG, UK; +44 (0)131465 5680; sesres@nhslothian.scot.nhs.uk), ref: 22/SS/0053

Study design

Multi-centre cluster randomized trial

Primary study design Interventional

Secondary study design Cluster randomised trial

Study setting(s) Hospice, Hospital

Study type(s) Treatment

Participant information sheet

See study outputs table

Health condition(s) or problem(s) studied

Patients in the last week of life (cancer, non-malignant disease)

Interventions

Research sites will be randomised to either "standard intervention A" or "standard intervention B" (see below), and this will become the standard of care at the research site for the duration of this study. The interventions represent the current typical standards of care in the UK. Randomisation will be undertaken 1:1 by cluster, to ensure balance and equal numbers in each intervention group, stratifying by home country (i.e. England, Wales, Scotland or Northern Ireland), and by type of unit (i.e. hospital or hospice).

Standard intervention A involves:

continuance of oral intake (if appropriate) - includes assistance with drinking as required. regular "mouth care" - mouth care should be performed at least every four hours, and should correspond to the research site's usual procedures for oral care in the terminal phase. Mouth care should be undertaken by the clinical team (but can involve carers if deemed appropriate). Mouth care should be discontinued/withheld if it causes distress/discomfort to the patient, or is otherwise difficult to undertake.

standard management of pain and other end-of-life symptoms/problems - should correspond to the research site's usual procedures for managing relevant problems in the terminal phase.

Standard intervention B involves: continuance of oral intake (if appropriate) - see above. regular mouth care - see above. standard management of pain and other end-of-life symptoms/problems - see above. CAH - see below.

The parenteral fluids may be given either intravenously (if an intravenous cannula is present), or subcutaneously (if no intravenous cannula is present). Intravenous fluids must be administered using an infusion pump, and subcutaneous fluids must be administered using gravity (and not using an infusion pump). The type/volume of fluid administered is based upon relevant NICE guidance: the fluid to be given is dextrose saline (4% dextrose, 0.18% sodium chloride), and the volume to be given is dependent on the patient's weight. It should be noted that the volume of fluid is based on a figure of 25 ml/kg/day, which is the lower limit for generic patients, and the upper limit (for consideration) in "old" or "frail" patients.

Intravenous fluids should be administered according to the research site's usual procedures. Subcutaneous fluids should be administered according to the following guidelines:

Patient's weight Volume of fluid ≤ 40 kg 1 L 50 kg 1.25 L 60 kg 1.5 L 70 kg 1.75 L ≥ 80 kg 2 L

Site of cannula - the preferred cannula sites are the lower lateral abdomen, and the upper lateral chest (rather than the upper arm, or the upper leg). If the cannula needs to be changed, then an alternative site should be used.

Type of cannula - the preferred cannula is a 24 g BD Saf-T-Intima cannula.

Rationale for changing cannula - the decision to change/re-site a cannula is at the discretion of the clinical team. Minimal (asymptomatic) swelling is expected at the site of the cannula, and is not in itself a reason to discontinue the infusion and/or re-site the cannula.

Rate of infusion - the preferred method of infusion is continuous infusion with the drop rate calculated in the usual manner.

Rationale for discontinuing the infusion - the decision to discontinue the infusion is at the discretion of the clinical team. Minimal (asymptomatic) swelling is expected at the site of the cannula, and is not in itself a reason to discontinue the infusion. The development of audible upper airways secretions ("death rattle") is also not in itself an indication to discontinue the infusion, since the development of this problem seems independent of hydration status/use of CAH.

Participants will be reviewed at least every four hours by the clinical team, and an assessment made as to whether or not certain symptoms/problems are present, i.e. delirium, audible upper respiratory secretions ("death rattle"), pain, shortness of breath, and nausea and vomiting. The clinical team will also assess patient's level of sedation every four hours, and document the indication for dispensing all as required and regular medication. The clinical team will complete a study-specific clinical observation document, which will be transcribed by the research team into the study case report form.

The maximum duration of the study is 14 days: the end of the study occurs with the death of the

patient, the withdrawal of the patient, or the completion of 14 days. The duration of the interventions is the same as the duration of the study, unless the clinical team deem that the relevant intervention should be modified/discontinued. For example, mouth care should be discontinued if it causes distress/discomfort to the patient. Patients that have their treatment modified/discontinued will remain in the study (and their data analysed on an intention to treat basis).

Intervention Type

Other

Primary outcome measure

Number of patients that develop delirium during the study. The Nursing Delirium Screening Scale (Nu-DESC) will be used to diagnose patients with delirium.

Secondary outcome measures

Measured throughout the study:

1. The proportion of patients that receive as-required and/or regular medication for delirium (data derived from drug chart).

2. Time to the first dose of medication for delirium (as-required or regular – data derived from drug chart).

3. Modified Richmond Agitation and Sedation Scale (m-RASS) scores during the study (mean score; proportion time with score 0; proportion time with score 0 to -2 – data derived from clinical observation document).

4. The proportion of patients with audible upper airway secretions ("death rattle" – data derived from clinical observation document).

5. The proportion of patients that receive as-required and/or regular medication for audible upper airway secretions (data derived from drug chart).

6. Time to the first dose of medication for audible upper airway secretions (as-required or regular – data derived from drug chart).

7. Proportion patients that experience pain, shortness of breath, and nausea and vomiting (and require medication for these symptoms – data derived from clinical observation document and drug chart).

8. Adverse effects of clinically-assisted hydration (data derived from clinical observation document).

9. Overall survival (data derived from clinical observation document).

10. Health economic analysis (data derived from clinical observation document and drug chart). 11. Carer feedback on end-of-life care and research participation.

Overall study start date

10/09/2021

Completion date

28/02/2025

Eligibility

Key inclusion criteria

1. Aged ≥18 years

- 2. Estimated prognosis of ≤1 week
- 3. Patient unable to maintain sufficient oral fluid intake (i.e. <1l/day).

Participant type(s)

Patient

Age group

Adult

Lower age limit

18 Years

Sex Both

Both

Target number of participants

1,600

Total final enrolment

1563

Key exclusion criteria

- 1. Patient is dehydrated (patient eligible for inclusion after correction of dehydration)
- 2. Patient has a relevant Advance Directive to Refuse Treatment (ADRT)
- 3. Clinical indication for CAH
- 4. Clinical contraindication to CAH
- 5. Contraindication to cannulation
- 6. Total parenteral nutrition/enteral feeding in situ
- 7. Patient has had delirium in last 24 h
- 8. Patient has had audible upper airway secretions in last 24 h
- 9. Patient likely to be transferred elsewhere for end-of-life care

Date of first enrolment

01/10/2022

Date of final enrolment 28/02/2025

Locations

Countries of recruitment

England

Northern Ireland

Scotland

United Kingdom

Wales

Study participating centre

Royal Surrey County Hospital Egerton Road Guildford United Kingdom GU2 7XX

Study participating centre Phyliss Tuckwell Waverley Lane, Farnham, Surrey United Kingdom GU9 8BL

Study participating centre Princess Alice Hospice West End Lane Esher United Kingdom KT10 8NA

Study participating centre St Peter & St James Hospice North Common Road North Chailey Lewes United Kingdom BN8 4ED

Study participating centre St Catherine's Hospice Grace Holland Avenue Pease Pottage United Kingdom RH11 9SF

Study participating centre St Barnabas Hospice Titnore Lane Worthing United Kingdom BN12 6NZ **Study participating centre St Wilfreds Hospice** Walton Lane Bosham Chichester United Kingdom PO18 8QB

Study participating centre Pilgrims Hospice In Thanet Ramsgate Road Margate United Kingdom CT9 4AD

Study participating centre St Wilfred's Hospice Broadwater Way Eastbourne United Kingdom BN22 9PZ

Study participating centre Hospice In the Weald Maidstone Road Pembury Tunbridge Wells United Kingdom TN2 4TA

Study participating centre St Elizabeth's Hospice Beccles Hospital St. Marys Road Beccles United States Minor Outlying Islands NR34 9NQ

Study participating centre

Pilgrims Hospice In East Kent

56 London Road Canterbury United Kingdom CT2 8JA

Study participating centre Ty Olwen Heol Maes

Eglwys Swansea United Kingdom SA6 6N

Study participating centre

The Heart of Kent Hospice Preston Hall Aylesford Maidstone United Kingdom ME20 7PU

Study participating centre Wisdom Hospice

High Bank St Williams Way Rochester United Kingdom ME1 2NU

Study participating centre

John Eastwood Hospice Mansfield Road Sutton-in-ashfield United Kingdom NG17 4HJ

Study participating centre Loros Leics & Rutland Hospice Groby Road

Leicester United Kingdom LE3 9QE

Study participating centre Lindsey Lodge Burringham Road Scunthorpe United Kingdom DN17 2AA

Study participating centre Royal Derby Hospital (nuh) Uttoxeter Road Derby United Kingdom DE22 3NE

Study participating centre Nottingham University Hospitals NHS Trust - Queen's Medical Centre Campus Nottingham University Hospital Derby Road Nottingham United Kingdom NG7 2UH

Study participating centre St Nicholas Hospice Macmillan Way Hardwick Lane Bury St. Edmunds United Kingdom IP33 2QY

Study participating centre Arthur Rank Hospice Charity Cherry Hinton Road Shelford Bottom Cambridge United Kingdom CB22 3FB

Study participating centre Specialist Palliative Care Services Priscilla Bacon Centre Unthank Road Norwich United Kingdom NR2 2PJ

Study participating centre Pilgrims Hospice at Ashford Hythe Road Willesborough Ashford United Kingdom TN24 0NE

Study participating centre Alice House Hospice Alice House Wells Avenue Hartlepool United Kingdom TS24 9DA

Study participating centre Teesside Hospice 1 Northgate Road Middlesbrough United Kingdom TS5 5NW

Study participating centre North Tyneside Specialist Unit Rake Lane North Shields United Kingdom NE29 8NH

Study participating centre St Davids Hospice Abbey Road

Llandudno United Kingdom LL30 2EN

Study participating centre Ysbyty Penrhos Stanley Penrhos Beach Road Holyhead United Kingdom LL65 2QA

Study participating centre Marie Curie Cardiff and Vale Hospice Bridgeman Road Penarth United Kingdom CF64 3YR

Study participating centre

Velindre Cancer Centre Velindre Road Cardiff United Kingdom CF14 2TL

Study participating centre

Wansbeck Specialist Unit Woodhorn Lane Ashington

United Kingdom NE63 9JJ

Study participating centre

St Cuthberts Hospice Park House Road Durham United Kingdom DH1 3QF

Study participating centre St Oswalds Hospice Regent Avenue Newcastle upon Tyne United Kingdom NE3 1EE

Study participating centre St Clare's Hospice Hastingwood Road Hastingwood Harlow United Kingdom CM17 9JX

Study participating centre Peace Hospice Peace Drive Watford United Kingdom WD17 3PH

Study participating centre Farleigh Hospice North Court Road Broomfield Chelmsford United Kingdom CM1 7FH

Study participating centre Saint Francis Hospice Sccs The Hall Broxhill Road Havering-atte-bower

Romford United Kingdom RM4 1QH Study participating centre St. Helena Hospice Myland Hall Barncroft Close Highwoods Colchester United Kingdom CO4 9JU

Study participating centre North London Hospice 47 Woodside Avenue North Finchley

London United Kingdom N12 8TT

Study participating centre St Johns Hospice (in Wirral) Mount Road Higher Bebington Wirral United Kingdom CH63 6JE

Study participating centre Willowbrook Hospice Portico Lane Eccleston Park Prescot United Kingdom L34 2QT

Study participating centre St Catherines Hospice

Lostock Lane Lostock Hall Preston United Kingdom PR5 5XU

Study participating centre

Trinity Hospice Community Low Moor Road Bispham Blackpool United Kingdom FY2 0BG

Study participating centre St Columbas Hospice

15 Boswall Road Edinburgh United Kingdom EH5 3RW

Study participating centre

The Prince and Princess of Wales 20 Dumbreck Road Bellahouston Park Glasgow United Kingdom G41 5BW

Study participating centre Royal Trinity Hospice

30 Clapham Common London United Kingdom SW4 0RN

Study participating centre

St Raphael's Hospice London Road Cheam Sutton United Kingdom SM3 9DX

Study participating centre Weston Hospicecare Jackson Barstow House

28 Thornbury Road Uphill Weston-super-mare United Kingdom BS23 4YQ

Study participating centre Marie Curie Hospice Edinburgh 45 Frogston Rd Edinburgh United Kingdom EH10 7DR

Study participating centre Dorothy House Hospice Dorothy House Hospice Care Winsley Bradford-on-avon United Kingdom BA15 2LE

Study participating centre St Margarets Hospice

Heron Drive Bishops Hull Taunton United Kingdom TA1 5HA

Study participating centre Weldmar Hospicecare Trust Herringston Road Dorchester United Kingdom DT1 2SL

Study participating centre Countess Mountbatten Hospice Botley Road West End Southampton United Kingdom SO30 3JB

Study participating centre

Earl Mountbatten Hospice Halberry Lane Newport United Kingdom PO30 2ER

Study participating centre Winchester Hospice Royal Hampshire County Hospital, Romsey Road Winchester United Kingdom SO22 5DG

Study participating centre Countess of Brecknock Hospice Charlton Road, War Memorial Community Hospital Andover United Kingdom SP10 3LB

Study participating centre St Michaels Hospice Aldermaston Road Basingstoke United Kingdom RG24 9NB

Study participating centre St Peters Hospice (brentry) Charlton Road Brentry Bristol United Kingdom BS10 6NL

Study participating centre Sue Ryder Care Home

Leckhampton Court Church Road Leckhampton Cheltenham United Kingdom GL53 0QJ

Study participating centre Birmingham St Mary's Hospice Birmingham St. Marys Hospice 176 Raddlebarn Road

Birmingham United Kingdom B29 7DA

Study participating centre Compton Palliative Care Team Compton Hospice Ltd, Compton Hall 4 Compton Road West Wolverhampton United Kingdom

WV3 9DH

Study participating centre

St Giles Hospice Fisherwick Road Whittington Lichfield United Kingdom WS14 9LH

Study participating centre Douglas Macmillan Hospice

Barlaston Road Blurton Stoke-on-trent United Kingdom ST3 3NZ

Study participating centre

The Mary Stevens Hospice

221 Hagley Road Stourbridge United Kingdom DY8 2JR

Study participating centre Warwick Myton Hospice Myton Lane Warwick United Kingdom CV34 6PX

Study participating centre

Saint Michael's Hospice - Harrogate Crimple House, Hornbeam Park Ave. Harrogate United Kingdom HG2 8NA

Study participating centre Dove House Hospice Chamberlain Road

Hull United Kingdom HU8 8DH

Study participating centre The Prince of Wales Hospice Halfpenny Lane Pontefract United Kingdom WF8 4BG

Study participating centre Saint Catherine's Hospice - Scarborough Throxenby Lane Scarborough United Kingdom YO12 5RE

Study participating centre Bolton Hospice Queens Park Street Off Chorley New Road Bolton United Kingdom

BL1 4QT

Study participating centre Kccg-chc St Julias St Julia's Hospice Foundry Hill Hayle United Kingdom TR27 4HW

Study participating centre St Kentigern Hospice Upper Denbigh Road St Asaph

United Kingdom LL17 0RS

Study participating centre

Oxford University Hospitals John Radcliffe Hospital Headley Way Headington Oxford United Kingdom OX3 9DU

Study participating centre

University Hospital Southampton NHS Foundation Trust Southampton General Hospital Tremona Road Southampton United Kingdom SO16 6YD

Study participating centre Sue Ryder Manorlands Hospice Manorlands Keighley Road Oxenhope Keighley United Kingdom BD22 9HJ

Study participating centre Salisbury NHS Foundation Trust Salisbury District Hospital Odstock Road Salisbury United Kingdom SP2 8BJ

Study participating centre Dr Kershaws Hospice Turf Lane Royton

Oldham United Kingdom OL2 6EU

Study participating centre St Christophers Hospice

51-59 Lawrie Park Road London United Kingdom SE26 6DZ

Study participating centre

Ipswich Hospital Heath Road Ipswich United Kingdom IP4 5PD Study participating centre Prospect Hospice Moormead Road Wroughton Swindon United Kingdom SN4 9BY

Study participating centre Royal Marsden Hospital Royal Marsden Hospital Downs Road Sutton United Kingdom SM2 5PT

Sponsor information

Organisation University of Surrey

Sponsor details

Stag Hill Guildford England United Kingdom GU2 7XX +44 (0)1483689797 ctu@surrey.ac.uk

Sponsor type University/education

Website https://ctu.surrey.ac.uk/

ROR https://ror.org/00ks66431

Funder(s)

Funder type

Government

Funder Name National Institute for Health Research

Alternative Name(s)

National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

Funding Body Type Government organisation

Funding Body Subtype National government

Location United Kingdom

Results and Publications

Publication and dissemination plan

Planned publication in a high-impact peer-reviewed journal

Intention to publish date

30/09/2025

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request. Anonymised raw data will be available to bone-fide academic researchers on request at the end of the study (and for 5 years afterwards) - requests need to be made to the study chief investigator (Prof Andrew Davies - andavies@tcd. ie), and a data sharing agreement will be produced between the study sponsor (University of Surrey) and the researchers' academic institution outlining the conditions of use of the data (including proposed analysis of the data). The participant information sheet will discuss the issue of data sharing.

IPD sharing plan summary

Available on request

| Output type | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|-------------------------------|-------------|--------------|------------|----------------|-----------------|
| Participant information sheet | version 1.0 | 27/07/2022 | 20/10/2022 | No | Yes |
| Participant information sheet | version 1.0 | 27/07/2022 | 20/10/2022 | No | Yes |
| Protocol file | version 1.0 | 27/07/2022 | 21/10/2022 | No | No |

| <u>Protocol file</u> | version 1.2 | 09/09/2022 | 28/10/2022 | No | No |
|-------------------------|-------------|------------|------------|-----|----|
| <u>Protocol article</u> | | 23/11/2022 | 24/11/2022 | Yes | No |
| HRA research summary | | | 28/06/2023 | No | No |
| HRA research summary | | | 28/06/2023 | No | No |
| <u>Protocol file</u> | version 1.5 | 19/02/2025 | 05/03/2025 | No | No |