Clinical trial results:
Multicentre prospective double blinded randomised controlled trial of the effect of intravenous iron supplementation and exercise training in Iron deficient, but not anaemic, patients with Chronic Kidney Disease on exercise capacity, physical function, fatigue and skeletal muscle metabolism.

Summary

EudraCT number	2018-000144-25
Trial protocol	GB
Global end of trial date	11 March 2022

Results information

Result version number	v1 (current)
This version publication date	08 December 2023
First version publication date	08 December 2023
Summary attachment (see zip file)	Summary report (Iron and Muscle Final Report_V1.1 24.01.23_Project Outcomes.docx)

Trial information

Trial identification

Sponsor protocol code	234820

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	-
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	King's College Hospital NHS Foundation Trust
Sponsor organisation address	Denmark Hill, London, United Kingdom, SE5 9RS
Public contact	Dr Kate Bramham, King's College Hospital, 44 (0)2032996233, kate.bramham@kcl.ac.uk
Scientific contact	Dr Kate Bramham, King's College Hospital, 44 (0)2032996233, kate.bramham@kcl.ac.uk

Notes:

Paediatric regulatory details

Is trial part of an agreed paediatric investigation plan (PIP)	No
Does article 45 of REGULATION (EC) No 1901/2006 apply to this trial?	No
Does article 46 of REGULATION (EC) No 1901/2006 apply to this trial?	No

Notes:

Results analysis stage

Analysis stage	Final
Date of interim/final analysis	11 March 2022
Is this the analysis of the primary completion data?	Yes
Primary completion date	11 March 2022
Global end of trial reached?	Yes
Global end of trial date	11 March 2022
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

To assess the effect of intravenous iron on exercise capacity, as assessed by 6-minute walking distance, with and without exercise training in patients with chronic kidney disease and iron deficiency, but without anaemia.

Protection of trial subjects:

Participants have the right to withdraw from the study at any time for any reason. The investigator also has the right to withdraw patients from the study treatment in the event of intercurrent illness, AEs, SAE's, SUSAR's, protocol violations, administrative reasons or other reasons. The role of the trial steering committee for this trial was to provide independent oversight of ethical and safety aspects of the trial and to advise the steering committee on acceptable continuation of the study, or whether the study should be stopped.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	10 May 2019
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	Yes

Notes:

Population of trial subjects

Subjects enrolled per country

Country: Number of subjects enrolled	United Kingdom: 75
Worldwide total number of subjects	75
EEA total number of subjects	75

Notes:

Subjects enrolled per age group

In utero	0
Preterm newborn - gestational age < 37 wk	0
Newborns (0-27 days)	0
Infants and toddlers (28 days-23 months)	0
Children (2-11 years)	0
Adolescents (12-17 years)	0
Adults (18-64 years)	49
From 65 to 84 years	26

85 years and over	0

Subject disposition

Recruitment

Recruitment details: -

Pre-assignment

Screening details: -

Pre-assignment period milestones

Number of subjects started	75
Number of subjects completed	75

Period 1

Period 1 title	Overall Trial (overall period)
Is this the baseline period?	Yes
Allocation method	Randomised - controlled
Blinding used	Double blind
Roles blinded	Subject, Investigator

Arms

Are arms mutually exclusive?	Yes
Arm title	IV iron

Arm description:

For all patients the total iron dose will be 1000mg as a one off infusion in 100ml normal saline administered over a minimum of 15 minutes. The final volume should be 100 ml. In order to achieve this, first remove 20ml from the 100 ml normal saline before adding the 20 ml vial of Ferinject,

Arm type	Experimental
Investigational medicinal product name	ferinject
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Injection
Routes of administration	Intravenous use

Dosage and administration details:

For all patients the total iron dose will be 1000mg as a one off infusion in 100ml normal saline administered over a minimum of 15 minutes.

Arm title	Placebo

Arm description:

Placebo patients will receive 100ml normal saline administered over a minimum of 15 minutes.

Arm type	Placebo
Investigational medicinal product name	normal saline
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Injection
Routes of administration	Intramuscular use

Dosage and administration details:

Placebo patients will receive 100ml normal saline administered over a minimum of 15 minutes.

Number of subjects in period 1	IV iron	Placebo
Started	38	37
Completed	24	20
Not completed	14	17
Lost to follow-up	14	17

Baseline characteristics

Reporting groups	
Reporting group title	Overall Trial

Reporting group description: -

Reporting group values	Overall Trial	Total	
Number of subjects	75	75	
Age categorical Units: Subjects			
In utero		0	
Preterm newborn infants (gestational age < 37 wks)		0	
Newborns (0-27 days)		0	
Infants and toddlers (28 days-23 months)		0	
Children (2-11 years)		0	
Adolescents (12-17 years)		0	
Adults (18-64 years)		0	
From 65-84 years		0	
85 years and over		0	
Age continuous Units: years			
arithmetic mean	57		
standard deviation	± 14	-	
Gender categorical Units: Subjects			
Female	43	43	
Male	32	32	

End points

End points reporting groups

Reporting group title	IV iron

Reporting group description:

For all patients the total iron dose will be 1000mg as a one off infusion in 100ml normal saline administered over a minimum of 15 minutes. The final volume should be 100 ml. In order to achieve this, first remove 20ml from the 100 ml normal saline before adding the 20 ml vial of Ferinject,

Reporting group title	Placebo

Reporting group description:

Placebo patients will receive 100ml normal saline administered over a minimum of 15 minutes.

Primary: 6 minute walk test

End point title	6 minute walk test[1]

End point description:

End point type	Primary

End point timeframe:

Baseline to week 4

Notes:

[1] - No statistical analyses have been specified for this primary end point. It is expected there is at least one statistical analysis for each primary end point.
Justification: Please see attached report

End point values	IV iron	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	31	31		
Units: metre				
arithmetic mean (standard deviation)				
baseline	385 (± 202)	454 (± 140)		
Week 4	381 (± 220)	468 (± 146)		
change	-4 (± 71)	14 (± 37)		

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information

Timeframe for reporting adverse events:

Baseline to week 12

Assessment type	Non-systematic

Dictionary used

Dictionary name	MedDRA
Dictionary version	26

Reporting groups

Reporting group title	IV iron

Reporting group description:

For all patients the total iron dose will be 1000mg as a one off infusion in 100ml normal saline administered over a minimum of 15 minutes. The final volume should be 100 ml. In order to achieve this, first remove 20ml from the 100 ml normal saline before adding the 20 ml vial of Ferinject,

Reporting group title	Placebo

Reporting group description:

Placebo patients will receive 100ml normal saline administered over a minimum of 15 minutes.

Serious adverse events	IV iron	Placebo	
Total subjects affected by serious adverse events			
subjects affected / exposed	2 / 38 (5.26%)	1 / 37 (2.70%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	
Musculoskeletal and connective tissue disorders			
Fall			
subjects affected / exposed	0 / 38 (0.00%)	1 / 37 (2.70%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Infections and infestations			
Acute pneumonia			
subjects affected / exposed	1 / 38 (2.63%)	0 / 37 (0.00%)	
occurrences causally related to treatment / all	0 / 2	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Septic shock			
subjects affected / exposed	1 / 38 (2.63%)	0 / 37 (0.00%)	
occurrences causally related to treatment / all	0 / 2	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	

Frequency threshold for reporting non-serious adverse events: 0 %

Non-serious adverse events	IV iron	Placebo	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	1 / 38 (2.63%)	3 / 37 (8.11%)	
Infections and infestations			
pseudomonas urinary tract infection			
subjects affected / exposed	0 / 38 (0.00%)	3 / 37 (8.11%)	
occurrences (all)	0	3	
Genitourinary infection			
subjects affected / exposed	0 / 38 (0.00%)	1 / 37 (2.70%)	
occurrences (all)	0	0	
Cellulitis			
subjects affected / exposed	1 / 38 (2.63%)	0 / 37 (0.00%)	
occurrences (all)	1	0	

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
17 July 2019	CI Change
07 December 2021	RSI update

Notes:

Interruptions (globally)

Were there any global interruptions to the trial? Yes

Date	Interruption	Restart date
12 March 2020	COVID-19 Interruptions	10 September 2020

Notes:

Limitations and caveats

None reported

Online references

http://www.ncbi.nlm.nih.gov/pubmed/35896969