Clinical trial results:
64Cu-DOTATATE PET/CT-skanning to diagnose macrophage infiltation in the heart valves of patients with infectiv endocarditis.

Summary

EudraCT number	2021-005501-27
Trial protocol	DK
Global end of trial date	29 September 2023

Results information

Result version number	v1 (current)
This version publication date	07 March 2025
First version publication date	07 March 2025
Summary attachment (see zip file)	published article (hadji-turdeghal-et-al-2025-first-in-human-study-of-64cu-cu-dotatate-pet-ct-in-infective-endocarditis-a-prospective-head (1).pdf)

Trial information

Trial identification

Sponsor protocol code	80843

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT05432427
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	Rigs
Sponsor organisation address	Blegdamsvej 9, copenhagen, Denmark, 2100
Public contact	Department of Cardiology, Rigshospitalet, 0045 35454885, katra.hadji-turdeghal@regionh.dk
Scientific contact	Department of Cardiology, Rigshospitalet, 0045 35456340, emil.fosboel@regionh.dk

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	29 September 2023
Is this the analysis of the primary completion data?	Yes
Primary completion date	29 September 2023
Global end of trial reached?	Yes
Global end of trial date	29 September 2023
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

We hypothesize that the 64Cu-DOTATATE will show uptake in the infected vegetations on the prosthetic heart valves and increase the accuracy of the right diagnosis – thus increasing the sensitivity and specificity compared to 18F-FDG PET/CT

Protection of trial subjects:

According to CGP guidelines

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	28 April 2022
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	Denmark: 69
Worldwide total number of subjects	69
EEA total number of subjects	69

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)	48
From 65 to 84 years	20
85 years and over	1

Subject disposition

Recruitment

Recruitment details:

All patients were included at the Departmet of Cardiology, Rigshospitalet, Copenhagen, Denmark according to inclusion and exclusion criteria as described

Pre-assignment

Screening details:

In total 99 patients were screened

Period 1

Period 1 title	overall trial (overall period)
Is this the baseline period?	Yes
Allocation method	Not applicable
Blinding used	Not blinded

Arms

Arm title	scans

Arm description:

64Cu]Cu-DOTATATE and [18F]FDG PET/CT were performed,using established methods at the Department of ClinicalPhysiology and Nuclear Medicine at Copenhagen University Hospital, Rigshospitalet. The scans were scheduled to be per-formed in a random order after diagnosis and not more than seven days between the two scans. Because of the differenteffective half-life of the tracers, [18F]FDG PET/CT could be performed no earlier than 48 hours after [64Cu]Cu-DOTATATEPET/CT. If the [18F]FDG PET/CT scan was performed first, at least 12 hours had to pass before the subsequent [64Cu]Cu-DOTATATE PET/CT could be performed

Arm type	scan
Investigational medicinal product name	64Cu-DOTATATE
Investigational medicinal product code	SUB181362
Other name	
Pharmaceutical forms	Concentrate and solvent for solution for injection
Routes of administration	Intravenous use

Dosage and administration details:

200 MBq(+/- 10%)/ml one time administration

Number of subjects in period 1	scans
Started	69
Completed	69

Baseline characteristics

Reporting groups

Reporting group title	overall trial

Reporting group description: -

Reporting group values	overall trial	Total	
Number of subjects	69	69	
Age categorical			
Cases: 68.0 [IQR 55.0-75.5] Controls 60.5 [IQR 57.0-69.5]			
Units: Subjects			
Cases	49	49	
Controls	20	20	
Gender categorical			
Cases: sex (male, n (%)): 17 (85.0%) Controls: (male, n (%)): 14 (70.0%)			
Units: Subjects			
Female	17	17	
Male	52	52	

Subject analysis sets

Subject analysis set title	the main study
Subject analysis set type	Sub-group analysis

Subject analysis set description:

The sensitivity and specificity of [64Cu]Cu-DOTATATEPET/CT in the 20 cases and the 20 controls were 55%(95% CI, 33–77) and 90% (95% CI, 77–100), respec-tively. This corresponded to a PPV of 85% (95% CI,65–100) and an NPV of 67% (95% CI, 49–84) in oursample with a prevalence of 50%
The sensitivity and specificity of [18F]FDG PET/CT inthe 20 cases and the 20 controls were 55% (95% CI,33–77) and 75% (95% CI, 56–94), respectively. Thiscorresponded to a positive predictive value (PPV) of69% (95% CI, 46–91) and a negative predictive value(NPV) of 63% (95% CI, 43–82)

Reporting group values	the main study		
Number of subjects	40		
Age categorical			
Cases: 68.0 [IQR 55.0-75.5] Controls 60.5 [IQR 57.0-69.5]			
Units: Subjects			
Cases	20		
Controls	20		
Gender categorical			
Cases: sex (male, n (%)): 17 (85.0%) Controls: (male, n (%)): 14 (70.0%)			
Units: Subjects			
Female	9		
Male	31		

End points

End points reporting groups

Reporting group title	scans

Reporting group description:

64Cu]Cu-DOTATATE and [18F]FDG PET/CT were performed,using established methods at the Department of ClinicalPhysiology and Nuclear Medicine at Copenhagen University Hospital, Rigshospitalet. The scans were scheduled to be per-formed in a random order after diagnosis and not more than seven days between the two scans. Because of the differenteffective half-life of the tracers, [18F]FDG PET/CT could be performed no earlier than 48 hours after [64Cu]Cu-DOTATATEPET/CT. If the [18F]FDG PET/CT scan was performed first, at least 12 hours had to pass before the subsequent [64Cu]Cu-DOTATATE PET/CT could be performed

Subject analysis set title	the main study
Subject analysis set type	Sub-group analysis

Subject analysis set description:

The sensitivity and specificity of [64Cu]Cu-DOTATATEPET/CT in the 20 cases and the 20 controls were 55%(95% CI, 33–77) and 90% (95% CI, 77–100), respec-tively. This corresponded to a PPV of 85% (95% CI,65–100) and an NPV of 67% (95% CI, 49–84) in oursample with a prevalence of 50%
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Primary: primary

End point title	primary

End point description:

End point type	Primary

End point timeframe:

April 2022 through June 2023,

End point values	scans	the main study		
Subject group type	Reporting group	Subject analysis set		
Number of subjects analysed	69	40		
Units: 55%	69	40		

Attachments (see zip file)	published article/hadji-turdeghal-et-al-2025-first-in-human-

Statistical analyses

Statistical analysis title	64Cu-DOTATATE

Statistical analysis description:

To assess differences in SUVmax uptake between groups for [64Cu]Cu-DOTATATE and [18F] FDG PET/CT respectively, unpaired Wilcoxon rank tests were applied.

Comparison groups	scans v the main study

Number of subjects included in analysis	109
Analysis specification	Pre-specified
Analysis type	other[1]
P-value	= 0.008 [2]
Method	Wilcoxon (Mann-Whitney)

Notes:

[1] - Cases vs controls 64Cu-DOTATATE

[2] - For CuDOTATATE

Statistical analysis title	18F-FDG
Comparison groups	scans v the main study
Number of subjects included in analysis	109
Analysis specification	Pre-specified
Analysis type	other
P-value	= 0.003
Method	Wilcoxon (Mann-Whitney)

Adverse events

Adverse events information

Timeframe for reporting adverse events:

April 2022 to april 2024 no serious adverse events have been reported. Only 8 participatns experienced transient symptoms after administration of the injection.

Assessment type	Systematic

Dictionary used

Dictionary name	MedDRA
Dictionary version	19

Reporting groups

Reporting group title	All patients

Reporting group description: -

Serious adverse events	All patients		
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 69 (0.00%)		
number of deaths (all causes)	0		
number of deaths resulting from adverse events	0		

Frequency threshold for reporting non-serious adverse events: 1 %

Non-serious adverse events	All patients		
Total subjects affected by non-serious adverse events			
subjects affected / exposed	8 / 69 (11.59%)		
Gastrointestinal disorders			
Diarrhoea	Additional description: Transient diarrhoea		
subjects affected / exposed	3 / 69 (4.35%)		
occurrences (all)	3		
Nausea	Additional description: Transient nausau after the injection		
subjects affected / exposed	2 / 69 (2.90%)		
occurrences (all)	2		
Skin and subcutaneous tissue disorders			
Flushing	Additional description: 2		
subjects affected / exposed	2 / 69 (2.90%)		
occurrences (all)	2		
Headache	Additional description: Headache short term		

subjects affected / exposed occurrences (all)	1 / 69 (1.45%) 1		

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? No

Interruptions (globally)

Were there any global interruptions to the trial? No

Limitations and caveats

None reported

Online references

http://www.ncbi.nlm.nih.gov/pubmed/39902600