Clinical trial results:
PHASE II INVESTIGATION OF THE HISTOPATHOLOGIC EFFECT OF CALCIUM ELECTROPORATION ON CANCER IN THE SKIN

Summary

EudraCT number	2019-004315-31
Trial protocol	DK
Global end of trial date	27 July 2023

Results information

Result version number	v1 (current)
This version publication date	03 November 2024
First version publication date	03 November 2024

Trial information

Trial identification

Sponsor protocol code	CaEP-B

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT04259658
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	Zealand University Hospital
Sponsor organisation address	Ringstedgade 61, Næstved, Denmark, 4700
Public contact	Lars Munch Larsen, Zealand University Hospital, laml@regionsjaelland.dk
Scientific contact	Julie Gehl, Zealand University Hospital, kgeh@regionsjaelland.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	02 October 2023
Is this the analysis of the primary completion data?	Yes
Primary completion date	19 October 2022
Global end of trial reached?	Yes
Global end of trial date	27 July 2023
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

The primary endpoint of this study is to evaluate differences in TIL population in tissue samples from treated cancer tumours two days after calcium electroporation treatment compared to before treatment (biopsy taken on the day of treatment before the calcium electroporation procedure). TIL content in biopsies will be evaluated by pathological examination and expressed as percent of cells.

Protection of trial subjects:

Patients included had consented in writing and fulfilled all eligibility criteria. Standard safety monitoring was performed during treatment.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	20 April 2020
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	No

Notes:

Population of trial subjects

Subjects enrolled per country

Country: Number of subjects enrolled	Denmark: 17
Worldwide total number of subjects	17
EEA total number of subjects	17

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)	6
From 65 to 84 years	10
85 years and over	1

Subject disposition

Recruitment

Recruitment details:

Patients were recruited from Dept. of Oncology, Zealand University Hospital.

Pre-assignment

Screening details:

Patients with any solid cancer and cutaneous metastases could be screened for inclusion. Patients could recieve other treatment.

Period 1

Period 1 title	Inclusion, treatment and follow-up (overall period)
Is this the baseline period?	Yes
Allocation method	Non-randomised - controlled
Blinding used	Not blinded

Arms

Arm title	Experimental

Arm description:

Patients treated with calcium electroporation

Arm type	Experimental
Investigational medicinal product name	Calcium chloride
Investigational medicinal product code	PR1
Other name	
Pharmaceutical forms	Solution for injection
Routes of administration	Intratumoral use

Dosage and administration details:

Tumors were measured (a longest diameter, b diameter perpendicular to a). A 3 mm margin was added. Calcium chloride was mixed to 220 mM (mixed with sodium chloride).
a. Tumour with a diameter <0.5 cm: 1 ml of calcium chloride solution pr cm3 tumour tissue was injected.
b. Tumour with a diameter from 0.5 cm to 3 cm: 0.5 ml of calcium chloride solution pr cm3 tumour tissue was injected.
(Maximum volume is 20 ml 220 mmol/l calcium chloride.)

Number of subjects in period 1	Experimental
Started	17
Completed	17

Baseline characteristics

Reporting groups

Reporting group title	Inclusion, treatment and follow-up

Reporting group description: -

Reporting group values	Inclusion, treatment and follow-up	Total	
Number of subjects	17	17	
Age categorical Units: Subjects			
In utero	0	0	
Preterm newborn infants (gestational age < 37 wks)	0	0	
Newborns (0-27 days)	0	0	
Infants and toddlers (28 days-23 months)	0	0	
Children (2-11 years)	0	0	
Adolescents (12-17 years)	0	0	
Adults (18-64 years)	6	6	
From 65-84 years	10	10	
85 years and over	1	1	
Gender categorical Units: Subjects			
Female	15	15	
Male	2	2	

Subject analysis sets

Subject analysis set title	TIL infiltration in biopsies
Subject analysis set type	Per protocol

Subject analysis set description:

Infiltration of TILs in biopsies on day 2 relative to pre-treatment was analysed

Reporting group values	TIL infiltration in biopsies		
Number of subjects	17		
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)	6		
From 65-84 years	10		
85 years and over	1		

Gender categorical Units: Subjects			
Female	15		
Male	2		

End points

End points reporting groups

Reporting group title	Experimental
Reporting group description:	
Patients treated with calcium electroporation	
Subject analysis set title	TIL infiltration in biopsies
Subject analysis set type	Per protocol
Subject analysis set description:	
Infiltration of TILs in biopsies on day 2 relative to pre-treatment was analysed	

Primary: Difference in TIL population from before to two days after treatment in tumor biopsy

End point title	Difference in TIL population from before to two days after treatment in tumor biopsy[1]
End point description:	
TIL content in biopsies will be evaluated by pathological examination and expressed as percent of cells.	
End point type	Primary
End point timeframe:	
The primary endpoint of this study is to evaluate differences in TIL population in tissue samples from treated cancer tumours two days after calcium electroporation treatment compared to before treatment	
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: Statistical analyses were performed only within biopsies in the same patient. Results reported in paper as listed.	

End point values	Experimental			
Subject group type	Reporting group			
Number of subjects analysed	17			
Units: percent				
number (not applicable)	17			

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information

Timeframe for reporting adverse events:

AE's was evaluated systematically until 2 months post calcium electroporation

Assessment type	Systematic

Dictionary used

Dictionary name	CTCAE
Dictionary version	4.0

Reporting groups

Reporting group title	Experimental

Reporting group description: -

Serious adverse events	Experimental		
Total subjects affected by serious adverse events			
subjects affected / exposed	1 / 17 (5.88%)		
number of deaths (all causes)	0		
number of deaths resulting from adverse events	0		
Skin and subcutaneous tissue disorders			
Bleeding	Additional description: The patient was hospitalized due to bleeing from the biopsy locations. It was deemed not to be related to the study treatment but related to a chemotherapy related thrombocythopenia.		
subjects affected / exposed	1 / 17 (5.88%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		

Frequency threshold for reporting non-serious adverse events: 5 %

Non-serious adverse events	Experimental		
Total subjects affected by non-serious adverse events			
subjects affected / exposed	6 / 17 (35.29%)		
Skin and subcutaneous tissue disorders			
Suppuration			
subjects affected / exposed	1 / 17 (5.88%)		
occurrences (all)	1		
Ulceration			
subjects affected / exposed	2 / 17 (11.76%)		
occurrences (all)	2		
Skin			

subjects affected / exposed	1 / 17 (5.88%)		
occurrences (all)	1		
Pruritus			
subjects affected / exposed	2 / 17 (11.76%)		
occurrences (all)	2		

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/38804839

http://www.ncbi.nlm.nih.gov/pubmed/37436059