Clinical trial results:
Prevention of infection in orthopaedic spine surgery - a clinical study antibiotic concentrations of in spine tissue after administration of weight-dosed antibiotics

Summary

EudraCT number	2020-004004-34
Trial protocol	DK
Global end of trial date	31 December 2022

Results information

Result version number	v1 (current)
This version publication date	10 June 2023
First version publication date	10 June 2023

Trial information

Trial identification

Sponsor protocol code	005965

Additional study identifiers

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

Notes:

Sponsors

Sponsor organisation name	Aarhus University Hospital
Sponsor organisation address	Palle Juul-Jensens Boulevard 99, Aarhus N, Denmark, 8200
Public contact	Magnus A. Hvistendahl, Aarhus University Hospital, maghvi@clin.au.dk
Scientific contact	Magnus A. Hvistendahl, Aarhus University Hospital, maghvi@clin.au.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	01 November 2022
Is this the analysis of the primary completion data?	Yes
Primary completion date	31 March 2022
Global end of trial reached?	Yes
Global end of trial date	31 December 2022
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

To investigate concentrations of the antibiotic cefuroxime in tissue of the spine in patients (adolescents and adults) undergoing spine deformity surgery after administration of weight-dosed cefuroxime.

Protection of trial subjects:

Patients were provided with analgesic drugs in relation to surgery in accordance with local guidelines. Food and drinks were also provided when needed. No patients experience discomfort and no study related adverse events were observed. A research assistant was with the patients during the study period.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	01 October 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: 22
Worldwide total number of subjects	22
EEA total number of subjects	22

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)	10
Adults (18-64 years)	10
From 65 to 84 years	2
85 years and over	0

Subject disposition

Recruitment

Recruitment details:

Patients undergoing spine deformity surgery. Medical evaluation.

Pre-assignment

Screening details:

In- and excluding criteria has to be fulfilled before assignment to the study. Screened by medical doctor.

Period 1

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

Arms

Are arms mutually exclusive?	Yes
Arm title	Weight dosed cefuroxime (20 mg/kg) - Age 12-17 years

Arm description:

Cefuroxime dosed by weight (20 mg/kg) was administered intravenous to all patients preoperative and repeated 4 hours later.

Arm type	Experimental
Investigational medicinal product name	Cefuroxime
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Powder and solvent for solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:

20 mg/kg

Arm title	Weight dosed cefuroxime (20 mg/kg) - Age ≥ 18 years

Arm description:

Cefuroxime dosed by weight (20 mg/kg) was administered intravenous to all patients preoperative and repeated 4 hours later.

Arm type	Experimental
Investigational medicinal product name	Cefuroxime
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Powder and solvent for solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:

20 mg/kg

Number of subjects in period 1	Weight dosed cefuroxime (20 mg/kg) - Age 12-17 years	Weight dosed cefuroxime (20 mg/kg) - Age ≥ 18 years
Started	10	12
Completed	10	10
Not completed	0	2
Physician decision	-	1
Method malfunction (microdialysis)	-	1

Baseline characteristics

Reporting groups	
Reporting group title	Weight dosed cefuroxime (20 mg/kg) - Age 12-17 years
Reporting group description:	
Cefuroxime dosed by weight (20 mg/kg) was administered intravenous to all patients preoperative and repeated 4 hours later.	
Reporting group title	Weight dosed cefuroxime (20 mg/kg) - Age ≥ 18 years
Reporting group description:	
Cefuroxime dosed by weight (20 mg/kg) was administered intravenous to all patients preoperative and repeated 4 hours later.	

Reporting group values	Weight dosed cefuroxime (20 mg/kg) - Age 12-17 years	Weight dosed cefuroxime (20 mg/kg) - Age ≥ 18 years	Total
Number of subjects	10	12	22
Age categorical Units: Subjects			
In utero	0	0	0
Preterm newborn infants (gestational age < 37 wks)	0	0	0
Newborns (0-27 days)	0	0	0
Infants and toddlers (28 days-23 months)	0	0	0
Children (2-11 years)	0	0	0
Adolescents (12-17 years)	10	0	10
Adults (18-64 years)	0	10	10
From 65-84 years	0	2	2
85 years and over	0	0	0
Gender categorical Units: Subjects			
Female	7	10	17
Male	3	2	5

End points

End points reporting groups

Reporting group title	Weight dosed cefuroxime (20 mg/kg) - Age 12-17 years
Reporting group description:	
Cefuroxime dosed by weight (20 mg/kg) was administered intravenous to all patients preoperative and repeated 4 hours later.	
Reporting group title	Weight dosed cefuroxime (20 mg/kg) - Age ≥ 18 years
Reporting group description:	
Cefuroxime dosed by weight (20 mg/kg) was administered intravenous to all patients preoperative and repeated 4 hours later.	

Primary: Cefuroxime concentrations

End point title	Cefuroxime concentrations[1]
End point description:	
Mean cefuroxime concentrations over time in vertebral bone, paravertebral muscle, subcutaneous tissue, profound and superficial incision and plasma (see attached file)	
End point type	Primary
End point timeframe:	
From time 0 h (preoperative cefuroxime dose) up to 12 h (end of the study period).	

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: Raw data. See attached file: Mean cefuroxime concentrations two groups

End point values	Weight dosed cefuroxime (20 mg/kg) - Age 12-17 years	Weight dosed cefuroxime (20 mg/kg) - Age ≥ 18 years		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	10[2]	10[3]		
Units: µg/mL				
arithmetic mean (standard deviation)	0 (± 0)	0 (± 0)		

Notes:

[2] - See attached file.

[3] - See attached file.
2 patients were excluded. Physicians decision and malfunction of microdialysis

Attachments (see zip file)	Mean cefuroxime concentrations two groups/Mean cefuroxime

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information[1]	
Timeframe for reporting adverse events: From time 0 h (preoperative dose of cefuroxime) to 12 h after first administration (end of study period/sampling) for each patient.	
Assessment type	Non-systematic

Dictionary used	
Dictionary name	Produktresumé
Dictionary version	2020

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

Notes:

[1] - There are no non-serious adverse events recorded for these results. It is expected that there will be at least one non-serious adverse event reported.
Justification: No adverse events (serious or non-serious) were observed related to the study medicine or microdialysis method.

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