Clinical trial results:
A comparison between continuous systemic Lidocain and patient controlled intravenous morphine administration for pain control after posterior spinal fusion (PSF) in adolescent idiopatic scoliosis (AIS)

Summary

EudraCT number	2012-005264-98
Trial protocol	BE
Global end of trial date	12 August 2015

Results information

Result version number	v1 (current)
This version publication date	01 January 2020
First version publication date	01 January 2020

Trial information

Trial identification

Sponsor protocol code	GDW112012

Additional study identifiers

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

Notes:

Sponsors

Sponsor organisation name	University Hospitals Leuven
Sponsor organisation address	herestraat, Leuven, Belgium,
Public contact	Anesthesia research, University Hospitals Leuven, 32 16344620, christel.huygens@uzleuven.be
Scientific contact	Anesthesia research, University Hospitals Leuven, 32 16344620, christel.huygens@uzleuven.be

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	12 December 2016
Is this the analysis of the primary completion data?	Yes
Primary completion date	12 August 2015
Global end of trial reached?	Yes
Global end of trial date	12 August 2015
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

Is the peri- and postoperative administration of lidocaine an effective traetment to reduce postoperative pain after scoliosis surgery of Adolescent idiopathic scoliosis.

Protection of trial subjects:

The study medication was administered to patients with default hemodynamic monitoring in the setting of a completely equipped operation theatre. This enabled immediate detection and management of potential adverse events. Administration of study drugs was to be immediately stopped in case that the study subject showed signs of systemic toxicity (metallic taste, tinnitus, headache, seizure activity and ECG irregularities). Also after leaving the operation room, all patients were closely monitored for the occurrence of eventual (severe) adverse events.
Postoperative pain and distress was monitored and treated as described in the protocol. The Visual Analogue Scale (VAS) was used to assess pain and adequate pain treatment was provided.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	04 March 2013
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	Belgium: 70
Worldwide total number of subjects	70
EEA total number of subjects	70

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)	28

Adults (18-64 years)	34
From 65 to 84 years	8
85 years and over	0

Subject disposition

Recruitment

Recruitment details:

140 patients were assessed for eligibilty, 70 patients were enrolled and randomized between September 2013 and July 2015.

Pre-assignment

Screening details:

70 patients scheduled for posterior arthrodesis were enrolled in this prospective, randomised, double-blind, placebo-controlled clinical trial
placebo group n=34 (1 patient partial loss of follow up)
lidocaine group n=35

Pre-assignment period milestones

Number of subjects started	70
Number of subjects completed	70

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	Lidocaine-group

Arm description: -

Arm type	Experimental
Investigational medicinal product name	lidocaine
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for injection/infusion
Routes of administration	Intravenous bolus use , Intravenous drip use

Dosage and administration details:

Patients in the lidocaine-group were given an intravenous (IV) bolus injection of lidocaine 1.5 mg/kg at induction of anaesthesia and then a continuous infusion of 1.5 mg/kg.h which was continued until 6 hours after arrival at the PACU (postoperative care unit).

Arm title	Placebo-group

Arm description: -

Arm type	Placebo
Investigational medicinal product name	saline
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for injection/infusion
Routes of administration	Intravenous bolus use , Intravenous drip use

Dosage and administration details:

Patients in the placebo-group were given an intravenous (IV) bolus injection of saline at induction of anaesthesia and then a continuous infusion which was continued until 6 hours after arrival at the PACU.

Number of subjects in period 1	Lidocaine-group	Placebo-group
Started	35	35
Completed	35	35

Baseline characteristics

Reporting groups	
Reporting group title	Lidocaine-group
Reporting group description: -	
Reporting group title	Placebo-group
Reporting group description: -	

Reporting group values	Lidocaine-group	Placebo-group	Total
Number of subjects	35	35	70
Age categorical			
Lidocaine(year) (n=35) 49 [15; 56] Placebo(year) (n=35) 46 [16; 57] age between 12 and 75 years			
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			
median	49	46	
inter-quartile range (Q1-Q3)	15 to 56	16 to 57	-
Gender categorical			
Units: Subjects			
Female	21	27	48
Male	14	8	22
ASA class			
Units: Subjects			
ASA 1	12	11	23
ASA 2	22	24	46
ASA 3	1	0	1
weight			
Units: kg			
median	59.0	62.5	
inter-quartile range (Q1-Q3)	50 to 84	52 to 79	-

End points

End points reporting groups

Reporting group title	Lidocaine-group
Reporting group description: -	
Reporting group title	Placebo-group
Reporting group description: -	

Primary: Cumulative morphine usage

End point title	Cumulative morphine usage
End point description:	
Total usage of morphine during the first 24 hours postoperatively	
End point type	Primary
End point timeframe:	
24 hours after surgery	

End point values	Lidocaine-group	Placebo-group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	35	35		
Units: milligram(s)				
arithmetic mean (standard deviation)	47.7 (± 22.58)	51.2 (± 19.26)		

Statistical analyses

Statistical analysis title	Mean cumulative morphine usage
Comparison groups	Lidocaine-group v Placebo-group
Number of subjects included in analysis	70
Analysis specification	Pre-specified
Analysis type	equivalence
P-value	= 0.215
Method	Wilcoxon (Mann-Whitney)

Secondary: Postoperative nausea and vomiting

End point title	Postoperative nausea and vomiting
End point description:	
End point type	Secondary
End point timeframe:	
Day of surgery, day 1,2 and 3 after surgery	

End point values	Lidocaine-group	Placebo-group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	35	34		
Units: Number				
Vomiting	6	4		
Nausea	23	21		

Statistical analyses

Statistical analysis title	Occurance of postoperative nausea and vomiting
Comparison groups	Lidocaine-group v Placebo-group
Number of subjects included in analysis	69
Analysis specification	Pre-specified
Analysis type	equivalence
P-value	= 0.805
Method	Fisher exact

Secondary: Total number of morphine boli

End point title	Total number of morphine boli

End point description:

End point type	Secondary

End point timeframe:

At removal of PCIA system

End point values	Lidocaine-group	Placebo-group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	35	35		
Units: unit(s)				
median (inter-quartile range (Q1-Q3))				
Demanded	117 (61 to 209)	115 (66 to 159)		
Delivered	71 (46 to 131)	69 (40 to 101)		

Statistical analyses

Statistical analysis title	Demanded boli
Comparison groups	Placebo-group v Lidocaine-group
Number of subjects included in analysis	70
Analysis specification	Pre-specified
Analysis type	equivalence
P-value	= 0.47
Method	Wilcoxon (Mann-Whitney)

Adverse events

Adverse events information	
Timeframe for reporting adverse events:	
Until day 3 after surgery	
Assessment type	Systematic

Dictionary used	
Dictionary name	MedDRA
Dictionary version	21.1

Reporting groups	
Reporting group title	Lidocaine-group
Reporting group description: -	
Reporting group title	Placebo-group
Reporting group description: -	

Serious adverse events	Lidocaine-group	Placebo-group	
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 35 (0.00%)	4 / 35 (11.43%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events			
Nervous system disorders			
Dural tap			
subjects affected / exposed	0 / 35 (0.00%)	2 / 35 (5.71%)	
occurrences causally related to treatment / all	0 / 2	0 / 2	
deaths causally related to treatment / all	0 / 0	0 / 0	
Gastrointestinal disorders			
Pancreatitis acute			
subjects affected / exposed	0 / 35 (0.00%)	1 / 35 (2.86%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Respiratory, thoracic and mediastinal disorders			
Pneumonia			
subjects affected / exposed	0 / 35 (0.00%)	1 / 35 (2.86%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	

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

Non-serious adverse events	Lidocaine-group	Placebo-group	
Total subjects affected by non-serious adverse events subjects affected / exposed	32 / 35 (91.43%)	31 / 35 (88.57%)	
Blood and lymphatic system disorders Anaemia subjects affected / exposed occurrences (all)	14 / 35 (40.00%) 22	8 / 35 (22.86%) 22	
Gastrointestinal disorders Constipation subjects affected / exposed occurrences (all)	25 / 35 (71.43%) 52	27 / 35 (77.14%) 52	

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
30 May 2013	Pharmocokinetic sampling for lidocaine
09 July 2013	Quality of life questionnaire (SF-12) during screening and one month after surgery.
17 December 2013	Study participant age from 18 - 75 years. Incorportation of ECG pre-operative, at arrival PACU and 24hr postoperatively (Safety measurement).

Notes:

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/28403408