



Clinical trial results:

Conventional patient controlled epidural analgesia (PCEA) versus programmed intermittent epidural boluses (PIEB) for labor analgesia: a randomized, double blind study in nulliparous women

Summary

EudraCT number	2015-004600-30
Trial protocol	BE
Global end of trial date	27 February 2017

Results information

Result version number	v1 (current)
This version publication date	13 December 2020
First version publication date	13 December 2020
Summary attachment (see zip file)	PIEB for labour analgesia (PIEB 1 V3 2019-11-11.pdf)

Trial information

Trial identification

Sponsor protocol code	mvdv/er102015
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Additional study identifiers

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

Notes:

Sponsors

Sponsor organisation name	University Hospital Leuven
Sponsor organisation address	Herestaat 29, Leuven, Belgium,
Public contact	research anesthesiology, University Hospitals leuven, +32 16344270, marc.vandeveld@uzleuven.be
Scientific contact	research anesthesiology, University Hospitals leuven, +32 16344270, marc.vandeveld@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	25 November 2017
Is this the analysis of the primary completion data?	Yes
Primary completion date	23 February 2017
Global end of trial reached?	Yes
Global end of trial date	27 February 2017
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

Comparison of two techniques to maintain labor analgesia: Programmed intermittent epidural boluses (PIEB) with patient controlled epidural analgesia (PCEA) and the conventional technique, PCEA

Protection of trial subjects:

Before initiation of labor analgesia, an IV infusion of 500 mL Ringer's lactate is started and baseline maternal heart rate, noninvasive arterial blood pressure and fetal heart rate are recorded.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	04 January 2016
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: 125
Worldwide total number of subjects	125
EEA total number of subjects	125

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)	125
From 65 to 84 years	0
85 years and over	0

Subject disposition

Recruitment

Recruitment details:

149 patients were assessed for eligibility; 130 patients were enrolled and randomized between January 2016 and February 2017

Pre-assignment

Screening details:

130 patients were enrolled

The included patients were randomized to two groups with 65 patients in each group. In the PCEA group 4 patients were excluded because of epidural catheter failure or protocol violation. In the PIEB group, 1 patient was excluded due to a failed epidural catheter.

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	PCEA-group
Arm description: -	
Arm type	Active comparator
Investigational medicinal product name	Naropin
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Injection
Routes of administration	Epidural use

Dosage and administration details:

In all parturients, labor analgesia is induced using a CSE technique in the sitting position at the level of L3-L4 or L4-L5 lumbar interspace using the LOR to saline technique with a 16-gauge Tuohy epidural needle and a needle through needle technique with a 27-gauge spinal Whitacre needle. All patients receive an initial intrathecal loading dose of 4.2 mg of ropivacaine and 2.5 mcg sufentanil (>ED95) 15 in a volume of 3.5mL: ropivacaine 0.120% + sufentanil 0.75 microgram/mL. A multiorifice epidural catheter is inserted 4-5 cm into the epidural space and secured. The same ropivacaine-sufentanil solution is used for epidural infusion and intermittent boluses during maintenance. In the conventional PCEA group, a PCEA is initiated 5 minutes after the spinal injection. The bolus is set at 5 mL with a lock-out of 12 minutes.

Arm title	PIEB-PCEA group
Arm description: -	
Arm type	Experimental
Investigational medicinal product name	Naropin
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Injection
Routes of administration	Epidural use

Dosage and administration details:

All parturients received intrathecally 4mL of ropivacaine 0.120% and sufentanil 0.75 mcg/mL. The spinal needle was removed and a multi-orifice epidural catheter was inserted 4 cm into the epidural space. Analgesia was maintained using an hourly programmed bolus of 10 mL supplemented by PCEA boluses of 5 mL with a lock-out of 20'. The hourly bolus was administered for the first time 30' after initiation of the PIEB pump. In both groups, the pump was initiated 15' after the intrathecal injection was completed and if VAS scores were <20 mm. If VAS scores were >20 mm patients were excluded from the study.

Number of subjects in period 1	PCEA-group	PIEB-PCEA group
Started	61	64
Completed	61	64

Baseline characteristics

Reporting groups

Reporting group title	PCEA-group
Reporting group description: -	
Reporting group title	PIEB-PCEA group
Reporting group description: -	

Reporting group values	PCEA-group	PIEB-PCEA group	Total
Number of subjects	61	64	125
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)	0	0	0
Adults (18-64 years)	61	64	125
From 65-84 years	0	0	0
85 years and over	0	0	0
Age continuous			
Units: years			
median	28	28	
inter-quartile range (Q1-Q3)	25 to 30	26 to 30.25	-
Gender categorical			
Units: Subjects			
Female	61	64	125
Male	0	0	0

End points

End points reporting groups

Reporting group title	PCEA-group
Reporting group description: -	
Reporting group title	PIEB-PCEA group
Reporting group description: -	

Primary: breakthrough pain

End point title	breakthrough pain
End point description:	
End point type	Primary
End point timeframe:	
The primary outcome parameter was the occurrence of breakthrough pain. Breakthrough pain was defined as a VAS score >30 mm for which the parturient requested additional analgesia after at least 1 PCEA bolus was administered. If breakthrough pain occurred	

End point values	PCEA-group	PIEB-PCEA group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	61	64		
Units: percentage	61	64		

Statistical analyses

Statistical analysis title	breakthrough pain
Statistical analysis description:	
A binary logistic regression with a logit link function was used for the analysis of the primary outcome. In a univariable logistic regression, the indicator variable for breakthrough pain is regressed on the treatment conditions.	
Comparison groups	PCEA-group v PIEB-PCEA group
Number of subjects included in analysis	125
Analysis specification	Pre-specified
Analysis type	superiority
P-value	≤ 0.05
Method	Regression, Logistic

Adverse events

Adverse events information^[1]

Timeframe for reporting adverse events:
until 24 hours after delivery.

Assessment type	Systematic
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Dictionary used

Dictionary name	MedDRA
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Dictionary version	21.1
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Frequency threshold for reporting non-serious adverse events: 0.5 %

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 AE 's reported

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