Clinical trial results:
A prospective randomized double-blind study
Intranasal dexmedetomidine versus intranasal S-ketamine for children age
1 – 3 years for procedural sedation and analgesia in pediatric emergency department.

Summary

EudraCT number	2017-000057-40
Trial protocol	SE
Global end of trial date	28 October 2020

Results information

Result version number	v1 (current)
This version publication date	19 December 2023
First version publication date	19 December 2023

Trial information

Trial identification

Sponsor protocol code	dex_vs_ket

Additional study identifiers

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

Notes:

Sponsors

Sponsor organisation name	Karolinska University Hospital
Sponsor organisation address	AnnaStecksens gatan, Stockholm, Sweden,
Public contact	Astrid Lindgrens Childrens hospital, Karolinska University Hospital, 46 851770000,
Scientific contact	Astrid Lindgrens Childrens hospital, Karolinska University Hospital, 46 851770000,

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	18 November 2023
Is this the analysis of the primary completion data?	Yes
Primary completion date	28 October 2020
Global end of trial reached?	Yes
Global end of trial date	28 October 2020
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

The aim of this study is to measure whether intranasal dexmedetomidine can provide better, faster onset of action and more effective, analgesia and sedation during procedure than intranasal S-ketamine among children between 1 and 3 years of age with minor injuries with respect to analgesia measured by FLACC in a prospective randomized doubleblind study.
We are interested in finding out if intranasal dexmedetomidine could be used for PSA for painful procedures in combination with local anesthesia.

Protection of trial subjects:

This trial was approved by the Swedish Ethical Review Authority, Stockholm.
As all subject enrolled in this trial were minors and therefore vulnerable the risks and benefits of the treatments were carefully assessed.
Informed consent was required from all caregivers.
All data has been treated anonymously.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	22 May 2017
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	Sweden: 30
Worldwide total number of subjects	30
EEA total number of subjects	30

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)	15
Children (2-11 years)	15

Adolescents (12-17 years)	0
Adults (18-64 years)	0
From 65 to 84 years	0
85 years and over	0

Subject disposition

Recruitment

Recruitment details:

Patient recruitment was carried out in the pediatric ED at Astrid Lindgren Children's hospital (ALB), Karolinska University Hospital in Stockholm, Sweden between July 2017 and October 2019

Pre-assignment

Screening details:

Children 1 - 3 years old who presented to the ALB ED with a laceration in need of suturing or a burn covering less than 4% of the body surface area were eligible for enrolment.

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, Monitor, Carer

Blinding implementation details:

A physician not participating in the trial created a randomization list after a random draw and filled the envelopes with information (trial medicine and dose table) and numbered them according to the list. Envelopes were then used in number order.
The trial physician, ED physician and nurses caring for the patient, as well as the patient and parents were blinded to the medication, as were all other staff working in the ED.

Arms

Are arms mutually exclusive?	Yes
Arm title	IN DEX

Arm description:

Subjects received intranasal dexmedetomidine for procedural sedation and analgesia.

Arm type	Experimental
Investigational medicinal product name	dexmedetomidine
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Concentrate for solution for injection/infusion
Routes of administration	Intranasal use

Dosage and administration details:

Dexmedetomidine 100 mcg/ml without dilution. A 1 ml syringe with a nasal atomizer was used for drug administration. Dose 2.0 mikrog/kg

Arm title	IN KET

Arm description:

Subjects received intranasal esketamine for procedural sedation and analgesia.

Arm type	Active comparator
Investigational medicinal product name	esketamine
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Concentrate and solvent for solution for injection/infusion
Routes of administration	Intranasal use

Dosage and administration details:

Esketamine 25 mg/ml was used without dilution. A 1 ml syringe with a nasal atomizer was used for drug administration. Dose 1.0 mg/kg

Number of subjects in period 1	IN DEX	IN KET
Started	15	15
Completed	15	15

Baseline characteristics

Reporting groups	
Reporting group title	IN DEX
Reporting group description:	
Subjects received intranasal dexmedetomidine for procedural sedation and analgesia.	
Reporting group title	IN KET
Reporting group description:	
Subjects received intranasal esketamine for procedural sedation and analgesia.	

Reporting group values	IN DEX	IN KET	Total
Number of subjects	15	15	30
Age categorical Units: Subjects			
Infants and toddlers (28 days-23 months)	6	9	15
Children (2-11 years)	9	6	15
Gender categorical Units: Subjects			
Female	7	4	11
Male	8	11	19

End points

End points reporting groups	
Reporting group title	IN DEX
Reporting group description:	
Subjects received intranasal dexmedetomidine for procedural sedation and analgesia.	
Reporting group title	IN KET
Reporting group description:	
Subjects received intranasal esketamine for procedural sedation and analgesia.	

Primary: pain	
End point title	pain
End point description:	
End point type	Primary
End point timeframe:	
After procedure	

End point values	IN DEX	IN KET		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	15	15		
Units: 10	15	15		

Statistical analyses

Statistical analysis title	dex vs ket
Comparison groups	IN DEX v IN KET
Number of subjects included in analysis	30
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.05
Method	Wilcoxon (Mann-Whitney)
Parameter estimate	Median difference (final values)

Secondary: sedation	
End point title	sedation
End point description:	
End point type	Secondary

End point timeframe:
After procedure

End point values	IN DEX	IN KET		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	15	15		
Units: 6	15	15		

Statistical analyses

No statistical analyses for this end point

Secondary: parental satisfaction

End point title	parental satisfaction

End point description:

End point type	Secondary

End point timeframe:
After procedure

End point values	IN DEX	IN KET		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	15	15		
Units: 5	15	15		

Statistical analyses

No statistical analyses for this end point

Secondary: Physicians opinion

End point title	Physicians opinion

End point description:

End point type	Secondary

End point timeframe:
After procedure

End point values	IN DEX	IN KET		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	15	15		
Units: 5	15	15		

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information[1]	
Timeframe for reporting adverse events: July 2017 - October 2019	
Adverse event reporting additional description: Reported to Swedish Medical authority	
Assessment type	Systematic

Dictionary used	
Dictionary name	MedDRA
Dictionary version	2.1

Reporting groups	
Reporting group title	dexmedetomidine
Reporting group description: -	
Reporting group title	esketamine
Reporting group description: -	

Serious adverse events	dexmedetomidine	esketamine	
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 30 (0.00%)	0 / 15 (0.00%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	

Frequency threshold for reporting non-serious adverse events: 0.7 %

Non-serious adverse events	dexmedetomidine	esketamine	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	0 / 30 (0.00%)	0 / 15 (0.00%)	

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 serious or non-serious adverse events were reported in this trial.

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