



Clinical trial results:

The effect of low-dose salicylate treatment on platelet function in patients with renal failure treated with darbopoietin alfa (EPOASA study)

Summary

EudraCT number	2018-002318-11
Trial protocol	DK
Global end of trial date	31 December 2024

Results information

Result version number	v1 (current)
This version publication date	22 August 2026
First version publication date	22 August 2026

Trial information

Trial identification

Sponsor protocol code	EPOASA
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Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT04330729
WHO universal trial number (UTN)	-
Other trial identifiers	The Danish Data Protection Agency: REG-018-2018

Notes:

Sponsors

Sponsor organisation name	Zealand University hospital
Sponsor organisation address	Vestermarksvej 10, Roskilde, Denmark, 4000
Public contact	Department of medicine, Zealand University hospital, james.heaf@gmail.com
Scientific contact	Department of medicine, Zealand University hospital, james.heaf@gmail.com
Sponsor organisation name	Zealand University Hospital
Sponsor organisation address	Sygehusvej 10, Roskilde, Denmark, 4000
Public contact	Rikke Borg, Zealand university hospital, department of medicin, 45 93569290, Rbor@regionsjaelland.dk
Scientific contact	Rikke Borg, Zealand University Hospital, 45 93569220, rbor@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	05 January 2026
Is this the analysis of the primary completion data?	Yes
Primary completion date	31 December 2024
Global end of trial reached?	Yes
Global end of trial date	31 December 2024
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

To determine the effect of darbopoietin alfa on platelet function

To determine whether Aspirin affects the effect of darbopoietin alfa on platelet function

There is no randomization and no other endpoints than bloodsample results. Please see the attached table for full dataset (attached under platelets)

Protection of trial subjects:

All blood tests were drawn concurrently with scheduled dialysis or outpatient check-ups to minimize the number of blood draws and hospital visits

Patients experiencing gastrointestinal symptoms were offered concomitant treatment with pantoprazole.

Hemoglobin levels were measured monthly, and EPO dosage was adjusted accordingly. If hemoglobin was below 6.8 at Visit 4, the planned pause in EPO therapy was deferred until hemoglobin reached at least 6.8.

Background therapy:

The patients continued their usual medication, such as antihypertensives, phosphate binders, and diuretics.

Evidence for comparator:

The patients served as their own controls. Blood samples were taken with and without EPO and low-dose aspirin, respectively.

Actual start date of recruitment	22 May 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: 27
Worldwide total number of subjects	27
EEA total number of subjects	27

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)	15
From 65 to 84 years	12
85 years and over	0

Subject disposition

Recruitment

Recruitment details:

Eligible individuals were identified using electronic medical records and were included upon written and orally informed consent.

Pre-assignment

Screening details:

Inclusion criteria: Age 18–85 years, CKD+ indication for ESA, and ability to provide informed consent.

Exclusion criteria: Known allergy or contraindication to ASA, current clinical indication for ASA, reticulocyte count $>99 \times 10^9/L$, current anticoagulant therapy

Fifty-seven individuals were invited to participate in the study

Period 1

Period 1 title	Visit2
Is this the baseline period?	Yes
Allocation method	Not applicable
Blinding used	Not blinded

Arms

Arm title	All patients
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Arm description:

All patients at visit 2 (after 4 weeks EPO wash out)

Arm type	All patients
Investigational medicinal product name	nothing
Investigational medicinal product code	
Other name	Nothing was administered at baseline (4 weeks wash out)
Pharmaceutical forms	Tablet
Routes of administration	Unknown use

Dosage and administration details:

As described, nothing was administered at baseline. However, I am required to specify a product.

Number of subjects in period 1	All patients
Started	27
ESA washout	27
Completed	27

Period 2

Period 2 title	Visit3
Is this the baseline period?	No
Allocation method	Not applicable
Blinding used	Not blinded

Arms

Arm title	All patients
Arm description: All patients at visit 3	
Arm type	All patients
Investigational medicinal product name	aranesp
Investigational medicinal product code	B03XA02
Other name	
Pharmaceutical forms	Injection
Routes of administration	Intravenous use, Subcutaneous use

Dosage and administration details:

Darbepoetin alfa was administered intravenously in HD participants and subcutaneously in PD and non-dialysis CKD participants once weekly at a dose required to maintain a target hemoglobin level of approximately 6.5–7.2 mM.

Number of subjects in period 2	All patients
Started	27
ESA treatment alone	23
Completed	23
Not completed	4
Adverse event, serious fatal	1
Ceased ESA indication	1
Hemoglobin > 8mM	1
Recurrent infection	1

Period 3

Period 3 title	Visit4
Is this the baseline period?	No
Allocation method	Not applicable
Blinding used	Not blinded

Arms

Arm title	All patients
Arm description: All patients	
Arm type	All patients
Investigational medicinal product name	aranesp
Investigational medicinal product code	B03XA02
Other name	
Pharmaceutical forms	Injection
Routes of administration	Intravenous use, Subcutaneous use

Dosage and administration details:

Darbepoetin alfa was administered intravenously in HD participants and subcutaneously in PD and non-dialysis CKD participants once weekly at a dose required to maintain a target hemoglobin level of approximately 6.5–7.2 mM

All patients: tablet Acetylsalicylic acid 75mg x 1 daily

Investigational medicinal product name	Acetylsalicylic acid
Investigational medicinal product code	B01AC06
Other name	
Pharmaceutical forms	Tablet
Routes of administration	Oral use

Dosage and administration details:

All patients: acetylsalicylic acid 75mg x 1daily

Number of subjects in period 3	All patients
Started	23
ESA+ASA treatment	20
Completed	20
Not completed	3
Ceased ESA indication	1
patient wish	1
Hemoglobin > 8mM	1

Period 4

Period 4 title	Visit5
Is this the baseline period?	No
Allocation method	Not applicable
Blinding used	Not blinded

Arms

Arm title	All patients
Arm description:	
All patients at visit 5	
Arm type	All patients
No investigational medicinal product assigned in this arm	

Number of subjects in period 4	All patients
Started	20
Post-treatment washout	15
Completed	15
Not completed	5
patient wish	3
Hemoglobin <6,5mM	2

Baseline characteristics

Reporting groups

Reporting group title	Visit2
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Reporting group description: -

Reporting group values	Visit2	Total	
Number of subjects	27	27	
Age categorical			
Units: Subjects			

Age continuous			
All patients included in the trial			
Units: years			
arithmetic mean	61		
standard deviation	± 15	-	
Gender categorical			
All patients included in the trial.			
Units: Subjects			
Female	5	5	
Male	22	22	

End points

End points reporting groups

Reporting group title	All patients
Reporting group description: All patients at visit 2 (after 4 weeks EPO wash out)	
Reporting group title	All patients
Reporting group description: All patients at visit 3	
Reporting group title	All patients
Reporting group description: All patients	
Reporting group title	All patients
Reporting group description: All patients at visit 5	

Primary: Platelets

End point title	Platelets
End point description:	
End point type	Primary
End point timeframe: Visit 2, Visit 3, visit 4 and visit 5	

End point values	All patients	All patients	All patients	All patients
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	27	23	20	15
Units: $\times 10^9/L$				
arithmetic mean (standard deviation)	236 ($\pm$ 63)	254 ($\pm$ 66)	248 ($\pm$ 60)	225 ($\pm$ 66)

Attachments (see zip file)	tables_EUdraCT.pdf
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Statistical analyses

Statistical analysis title	Differences between periods
Statistical analysis description: Statistical analyses were performed using Statistica version 12 (Tulsa, Arizona). Parametrically distributed variables were compared using Student's t-test; logarithmic transformation was applied where relevant. Non-parametric variables were compared using the Wilcoxon signed-rank test. Categorical data were analyzed using MANOVA or Chi-square tests. Correlation analyses were performed using Spearman's rank correlation. A probability value <0.05 was considered statistically significant. If a par	
Comparison groups	All patients v All patients v All patients v All patients

Number of subjects included in analysis	85
Analysis specification	Pre-specified
Analysis type	other
P-value	≤ 0.05
Method	t-test, 2-sided
Parameter estimate	Mean difference (final values)

Primary: Multiplate TRAP

End point title	Multiplate TRAP
End point description:	
Comparing values between visits	
End point type	Primary
End point timeframe:	
All visits	

End point values	All patients	All patients	All patients	All patients
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	27	23	20	15
Units: U				
arithmetic mean (standard deviation)	137 (± 34)	131 (± 27)	120 (± 29)	124 (± 31)

Statistical analyses

Statistical analysis title	Differences between periods
Statistical analysis description:	
Values compared between periods	
Comparison groups	All patients v All patients v All patients v All patients
Number of subjects included in analysis	85
Analysis specification	Pre-specified
Analysis type	other
P-value	≥ 0.05
Method	t-test, 2-sided
Parameter estimate	Mean difference (final values)

Primary: Multiplate ADP

End point title	Multiplate ADP ^[1]
End point description:	
End point type	Primary
End point timeframe:	
All periods	

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: See results in attached table.

End point values	All patients	All patients	All patients	All patients
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	27	23	20	15
Units: unit(s)				
arithmetic mean (standard deviation)	81 (± 26)	73 (± 24)	63 (± 21)	69 (± 21)

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information

Timeframe for reporting adverse events:

Every 4th week

Assessment type	Systematic
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Dictionary used

Dictionary name	ICD
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Dictionary version	10
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Reporting groups

Reporting group title	All patients
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Reporting group description:

All patients at visit 2 (after 4 weeks EPO wash out)

Serious adverse events	All patients		
Total subjects affected by serious adverse events			
subjects affected / exposed	6 / 27 (22.22%)		
number of deaths (all causes)	1		
number of deaths resulting from adverse events	0		
Gastrointestinal disorders			
Cholangitis acute			
subjects affected / exposed	1 / 27 (3.70%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Respiratory, thoracic and mediastinal disorders			
shortness of breath			
subjects affected / exposed	1 / 27 (3.70%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Renal and urinary disorders			
edema			
subjects affected / exposed	1 / 27 (3.70%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Renal cancer recurrent			

subjects affected / exposed	1 / 27 (3.70%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Declining kidney function			
subjects affected / exposed	1 / 27 (3.70%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Musculoskeletal and connective tissue disorders			
hip fracture			
subjects affected / exposed	1 / 27 (3.70%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Infections and infestations			
Infection			
subjects affected / exposed	2 / 27 (7.41%)		
occurrences causally related to treatment / all	0 / 3		
deaths causally related to treatment / all	0 / 0		
Death			
subjects affected / exposed	1 / 27 (3.70%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		

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

Non-serious adverse events	All patients		
Total subjects affected by non-serious adverse events			
subjects affected / exposed	21 / 27 (77.78%)		
Cardiac disorders			
hypotension			
subjects affected / exposed	1 / 27 (3.70%)		
occurrences (all)	1		
Nervous system disorders			
Headache			
subjects affected / exposed	1 / 27 (3.70%)		
occurrences (all)	1		

Blood and lymphatic system disorders Bleeding gums subjects affected / exposed occurrences (all)	1 / 27 (3.70%) 1		
General disorders and administration site conditions Fatigue subjects affected / exposed occurrences (all) increased tendency to fall subjects affected / exposed occurrences (all)	10 / 27 (37.04%) 11 2 / 27 (7.41%) 2		
Gastrointestinal disorders Diarrhoea subjects affected / exposed occurrences (all) Reflux gastritis subjects affected / exposed occurrences (all) Nausea subjects affected / exposed occurrences (all)	1 / 27 (3.70%) 1 5 / 27 (18.52%) 5 1 / 27 (3.70%) 1		
Respiratory, thoracic and mediastinal disorders shortness of breath subjects affected / exposed occurrences (all)	2 / 27 (7.41%) 2		
Infections and infestations Infection subjects affected / exposed occurrences (all)	6 / 27 (22.22%) 6		

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

Limitations of the trial such as small numbers of subjects analysed or technical problems leading to unreliable data.

Small sample size, surrogate laboratory markers of hemostasis rather than clinical events, short intervention periods, minor variations in dose and hemoglobin levels between visits.

Notes: