Clinical trial results:
Early Goal-Directed Nutrition in ICU Patients – EAT-ICU Trial

Summary

EudraCT number	2011-002547-94
Trial protocol	DK
Global end of trial date	15 October 2016

Results information

Result version number	v1 (current)
This version publication date	29 May 2018
First version publication date	29 May 2018
Summary attachment (see zip file)	EAT-ICU publication (ICM.EAT_ICU.pdf) EAT-ICU appendix (ICM.EAT_ICU_Appendix.pdf)

Trial information

Trial identification

Sponsor protocol code	2011-420

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT01372176
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	Dept. Of Intensive Care 4131, Rigshospitalet
Sponsor organisation address	Blegdamsvej 9, Copenhagen OE, Denmark, 2100
Public contact	ICU Research Group, Dept. Of Intensive Care 4131, Rigshospitalet, +45 35458333, anders.perner@regionh.dk
Scientific contact	ICU Research Group, Dept. Of Intensive Care 4131, Rigshospitalet, +45 35458333, anders.perner@regionh.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	31 May 2017
Is this the analysis of the primary completion data?	Yes
Primary completion date	15 October 2016
Global end of trial reached?	Yes
Global end of trial date	15 October 2016
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

This randomised trial will investigate the effect of an optimised nutrition therapy during intensive care, on short term clinical outcome and mitochondrial function in addition to long-term physical function and quality of life. We hypothesise, that early nutritional therapy, directed towards patient-specific goals for energy and protein requirements, will improve both short- and long-term outcomes.

Protection of trial subjects:

Compliance with ethical standards

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	03 June 2013
Long term follow-up planned	Yes
Long term follow-up rationale	Efficacy, Scientific research
Long term follow-up duration	6 Months
Independent data monitoring committee (IDMC) involvement?	No

Notes:

Population of trial subjects

Subjects enrolled per country

Country: Number of subjects enrolled	Denmark: 203
Worldwide total number of subjects	203
EEA total number of subjects	203

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)	97
From 65 to 84 years	97

85 years and over	9

Subject disposition

Recruitment

Recruitment details:

EAT-ICU was a single-centre, randomised, stratified, parallel-group, clinical trial with blinded outcome assessment, conducted at the Department of Intensive Care, Copenhagen University Hospital, Rigshospitalet, Denmark between June 2013 and October 2016 (last patient randomised in April 2016, followed by 6 months followup).

Pre-assignment

Screening details:

We consecutively screened patients 18 years of age or older within 24 h of any ICU admission for inclusion if they were (1) acutely admitted to the ICU; (2) had an expected length of stay in the ICU of more than 3 days; (3) were mechanically ventilated via a cuffed endotracheal or tracheotomy tube; (4) had a central venous catheter and (5) we

Period 1

Period 1 title	Screening period (overall period)
Is this the baseline period?	Yes
Allocation method	Randomised - controlled
Blinding used	Single blind
Roles blinded	Assessor[1]

Blinding implementation details:

The allocated nutrition strategy was not masked to research or clinical staff during the trial period. Investigators assessing quality of life at 6 months (the primary outcome) and rates of nosocomial infections (a secondary outcome) as well as the statistician performing the primary analysis of the primary outcome were all blinded to the intervention.

Arms

Are arms mutually exclusive?	Yes
Arm title	Intervention (EGDN)

Arm description:

See attached manuscript for description and products used in both arms.

Arm type	Experimental
Investigational medicinal product name	SMOFkabiven
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:

See attached info.

Investigational medicinal product name	Mixamin Glucos
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:

See attached.

Investigational medicinal product name	Glucose 50%
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:
See attached.

Investigational medicinal product name	Vamin
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:
Please see attached protocol for details.

Investigational medicinal product name	SMOFlipid
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:
See attached.

Arm title	Control (standard care)

Arm description:
Please see publication attached for information on conduct and products.

Arm type	Active comparator
Investigational medicinal product name	SMOFkabiven
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:
See attached info.

Investigational medicinal product name	Mixamin Glucos
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:
See attached.

Investigational medicinal product name	Glucose 50%
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:
See attached.

Investigational medicinal product name	Vamin
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use

Dosage and administration details: Please see attached protocol.	
Investigational medicinal product name	SMOFlipid
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use
Dosage and administration details: See attached.	

Notes:

[1] - The roles blinded appear inconsistent with a simple blinded trial.

Justification: I don't know why this error occurs.

Number of subjects in period 1	Intervention (EGDN)	Control (standard care)
Started	102	101
Completed	100	99
Not completed	2	2
Adverse event, serious fatal	1	2
Consent withdrawn by subject	1	-

Baseline characteristics

Reporting groups	
Reporting group title	Screening period

Reporting group description: -

Reporting group values	Screening period	Total	
Number of subjects	203	203	
Age categorical			
Median age in years			
Units: Subjects			
In utero	0	0	
Preterm newborn infants (gestational age < 37 wks)	0	0	
Newborns (0-27 days)	0	0	
Infants and toddlers (28 days-23 months)	0	0	
Children (2-11 years)	0	0	
Adolescents (12-17 years)	0	0	
Adults (18-64 years)	97	97	
From 65-84 years	97	97	
85 years and over	9	9	
Age in years (median)	0	0	
Gender categorical			
Male %			
Units: Subjects			
Female	79	79	
Male	124	124	

End points

End points reporting groups	
Reporting group title	Intervention (EGDN)
Reporting group description: See attached manuscript for description and products used in both arms.	
Reporting group title	Control (standard care)
Reporting group description: Please see publication attached for information on conduct and products.	

Primary: Primary endpoint	
End point title	Primary endpoint
End point description: PCS-score of SF-36.	
End point type	Primary
End point timeframe: 6 months after ramdomisation.	

End point values	Intervention (EGDN)	Control (standard care)		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	100	99		
Units: 22.9				
arithmetic mean (standard deviation)				
PCS-score	22.9 (± 21.8)	23.0 (± 22.3)		

Statistical analyses

Statistical analysis title	Primary outcome measure
Statistical analysis description: For the primary analysis of the primary outcome, the statistician did multiple imputation, based on chained equations as implemented in the R package 'mice', to account for the missing PCS scores of the 23 non-responders at 6-month follow-up	
Comparison groups	Intervention (EGDN) v Control (standard care)
Number of subjects included in analysis	199
Analysis specification	Pre-specified
Analysis type	equivalence
P-value	< 0.05
Method	Regression, Linear

Adverse events

Adverse events information[1]	
Timeframe for reporting adverse events: Full intervention period.	
Adverse event reporting additional description: SAR	
Assessment type	Systematic

Dictionary used	
Dictionary name	NA
Dictionary version	1

Frequency threshold for reporting non-serious adverse events: 4 %

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: None were recorded as this study was performed in ICU patients.

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.

Please see attached information for more details.

Notes:

Online references

http://www.ncbi.nlm.nih.gov/pubmed/28936712

http://www.ncbi.nlm.nih.gov/pubmed/27585532