Clinical trial results:
Brain mechanisms underlying the effect of the motilin receptor agonist erythromycin on hunger in normal weight subjects

Summary

EudraCT number	2013-004411-53
Trial protocol	BE
Global end of trial date	16 March 2016

Results information

Result version number	v1 (current)
This version publication date	18 February 2021
First version publication date	18 February 2021

Trial information

Trial identification

Sponsor protocol code	Erythromycin_v5

Additional study identifiers

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

Notes:

Sponsors

Sponsor organisation name	UZLeuven / KULeuven / Targid
Sponsor organisation address	Herestraat 49, Leuven, Belgium, 3000
Public contact	Jan Tack, University of Leuven, 0032 1637 75 45, jan.tack@kuleuven.be
Scientific contact	Dongxing Zhao, University of Leuven, 0032 1637 75 45, dongxing.zhao@med.kuleuven.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	14 March 2017
Is this the analysis of the primary completion data?	No

Global end of trial reached?	Yes
Global end of trial date	16 March 2016
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

Replicate the established effect of intravenous erythromycin infusion on hunger, and figure out the brain and/or hormonal mechanisms underlying the effect.

Protection of trial subjects:

healthy women

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	06 January 2014
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: 14
Worldwide total number of subjects	14
EEA total number of subjects	14

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)	14
From 65 to 84 years	0
85 years and over	0

Subject disposition

Recruitment

Recruitment details:

Right-handed, normal weight, healthy women (18–65 years) were included, to avoid sex as a potential confounder.

Pre-assignment

Screening details:

Exclusion criteria included smoking, substance abuse, regular intake of medications with an exception of oral contraception pills, chronic medical illness or illnesses affecting the gastrointestinal, cardiovascular, or nervous systems, chronic pain or psychiatric disorders, pregnancy and lactation, and any contraindication to MRI

Period 1

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

Arms

Are arms mutually exclusive?	No
Arm title	erythromycin

Arm description:

Cross over study with erythromycin and placebo. One hundred and fifteen minutes after breakfast, participants entered the MR scanner. After a 10 min adaptation period, the MRI scan started and lasted for 50 min in total. After 10 min baseline scanning, erythromycin [40 mg erythromycin lactobionate (Amdipharm Limited, Dublin, Ireland) dissolved in 100 mL 0.9% NaCl] were infused for 20 min (5 mL/min).

Arm type	Experimental
Investigational medicinal product name	erythromycin lactobionate
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Powder for infusion
Routes of administration	Intravenous use

Dosage and administration details:

40 mgerythromycin lactobionate (Amdipharm Limited, Dublin, Ireland) dissolved in 100 mL 0.9% NaCl] were infused for 20 min (5 mL/min).

Arm title	placebo

Arm description:

Cross over study with erythromycin and placebo. One hundred and fifteen minutes after breakfast, participants entered the MR scanner. After a 10 min adaptation period, the MRI scan started and lasted for 50 min in total. After 10 min baseline scanning, saline (100 mL 0.9% NaCl) was infused for 20 min (5 mL/min).

Arm type	Placebo
Investigational medicinal product name	saline (0.9% NaCl)
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for injection/infusion
Routes of administration	Intravenous use

Dosage and administration details:

saline (100 mL 0.9% NaCl) was infused for 20 min (5 mL/min).

Number of subjects in period 1	erythromycin	placebo
Started	13	13
Completed	13	13

Baseline characteristics

Reporting groups[1]	
Reporting group title	overall study period
Reporting group description: -	

Notes:

[1] - The number of subjects reported to be in the baseline period is not equal to the worldwide number of subjects enrolled in the trial. It is expected that these numbers will be the same.
Justification: One volunteer was excluded from analysis after scanning because she concealed a medical history and current symptoms of functional dyspepsia. All analyses
were performed on the remaining 13 volunteers.
Also the baseline characteristics are described only for this 13 volunteers.

Reporting group values	overall study period	Total	
Number of subjects	13	13	
Age categorical 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)	13	13	
From 65-84 years	0	0	
85 years and over	0	0	
Age continuous Units: years			
arithmetic mean	26		
standard deviation	± 2	-	
Gender categorical Units: Subjects			
Female	13	13	
Male	0	0	

End points

End points reporting groups

Reporting group title	erythromycin

Reporting group description:

Cross over study with erythromycin and placebo. One hundred and fifteen minutes after breakfast, participants entered the MR scanner. After a 10 min adaptation period, the MRI scan started and lasted for 50 min in total. After 10 min baseline scanning, erythromycin [40 mg erythromycin lactobionate (Amdipharm Limited, Dublin, Ireland) dissolved in 100 mL 0.9% NaCl] were infused for 20 min (5 mL/min).

Reporting group title	placebo

Reporting group description:

Cross over study with erythromycin and placebo. One hundred and fifteen minutes after breakfast, participants entered the MR scanner. After a 10 min adaptation period, the MRI scan started and lasted for 50 min in total. After 10 min baseline scanning, saline (100 mL 0.9% NaCl) was infused for 20 min (5 mL/min).

Primary: change in hunger sensation

End point title	change in hunger sensation

End point description:

End point type	Primary

End point timeframe:

As hypothesized, the increase in hunger and prospective food consumption in the time period t = 30–40 min was significantly higher after erythromycin compared to placebo (planned contrast, lower tailed t-test, p = 0.023)

End point values	erythromycin	placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	13[1]	13[2]		
Units: mm				
arithmetic mean (standard deviation)	74 (± 4)	66 (± 5)		

Notes:

[1] - cross over study

[2] - cross over study

Statistical analyses

Statistical analysis title	change in hunger
Comparison groups	erythromycin v placebo
Number of subjects included in analysis	26
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.023
Method	lower tailed t-test

Adverse events

Adverse events information[1]

Timeframe for reporting adverse events:

For each individual, corresponds to timeframe of study participation (from signing of informed consent until last visit).

Assessment type	Non-systematic

Dictionary used

Dictionary name	MedDRA
Dictionary version	23

Frequency threshold for reporting non-serious adverse events: 1 %

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 adverse events occurred during this study

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

Online references

http://www.ncbi.nlm.nih.gov/pubmed/29379095