Clinical trial results:
ACE-EPIC: ACE inhibitors to enhance the effects of pulmonary rehabilitation in COPD

Summary

EudraCT number	2012-000413-36
Trial protocol	GB
Global end of trial date	13 January 2016

Results information

Result version number	v1 (current)
This version publication date	31 July 2019
First version publication date	31 July 2019
Summary attachment (see zip file)	ACE EPIC paper (2016 Curtis ACE-PR study AJRCCM.pdf)

Trial information

Trial identification

Sponsor protocol code	WHRC_P37644

Additional study identifiers

ISRCTN number	ISRCTN79038750
ClinicalTrials.gov id (NCT number)	-
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	Imperial College, London
Sponsor organisation address	South Kensington Campus, London, United Kingdom,
Public contact	Lucy Parker, Imperial College, +44 20 7594 1554, lucy.parker@imperial.ac.uk
Scientific contact	Lucy Parker, Imperial College, +44 20 7594 1554, lucy.parker@imperial.ac.uk

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	13 January 2016
Is this the analysis of the primary completion data?	Yes
Primary completion date	13 January 2016
Global end of trial reached?	Yes
Global end of trial date	13 January 2016
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

The objective of the study is to establish whether enalapril can augment the effects of pulmonary rehabilitation on patients with COPD. This will focus on exercise capacity measured using cycle ergometry but data will also be collected on strength, body composition, physical activity level and health related quality of life.

Protection of trial subjects:

Standard GCP for research.

Background therapy:

Standard therapy (pulmonary rehabilitation)

Evidence for comparator:

ACE-I use and ACE gene polymorphisms are associated with muscle phenotype.
See submitted paper.

Actual start date of recruitment	01 October 2012
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	United Kingdom: 80
Worldwide total number of subjects	80
EEA total number of subjects	80

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)	40
From 65 to 84 years	40

85 years and over	0

Subject disposition

Recruitment

Recruitment details:

2 patients withdrew from the study before randomisation

Pre-assignment

Screening details:

Patients with stable COPD in Global Initiative for Chronic Obstructive Lung Disease stages II to IV, who were referred for PR and who had a Medical Research Council dyspnea score of at least 3 or 2 with functional limitation, were considered for inclusion.

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, Data analyst, Carer, Assessor

Arms

Are arms mutually exclusive?	Yes
Arm title	Enalapril

Arm description: -

Arm type	Experimental
Investigational medicinal product name	Enalapril
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Capsule
Routes of administration	Oral use

Dosage and administration details:

Enalapril 10mg od

Arm title	control

Arm description: -

Arm type	Placebo
Investigational medicinal product name	Placebo
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Capsule
Routes of administration	Oral use

Dosage and administration details:

1 capsule per day

Number of subjects in period 1[1]	Enalapril	control
Started	39	39
Completed	31	34
Not completed	8	5
Consent withdrawn by subject	3	1

Adverse event, non-fatal	5	4

Notes:

[1] - The number of subjects reported to be in the baseline period are not the same as the worldwide number enrolled in the trial. It is expected that these numbers will be the same.

Justification: 2 withdrew between enrolment and randomisation.

Baseline characteristics

End points

End points reporting groups

Reporting group title	Enalapril
Reporting group description: -	
Reporting group title	control
Reporting group description: -	

Primary: Change in peak workload on cycle ergometry

End point title	Change in peak workload on cycle ergometry
End point description:	
End point type	Primary
End point timeframe: 10 weeks	

End point values	Enalapril	control		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	31	34		
Units: watts				
arithmetic mean (confidence interval 95%)	1 (-2 to 4)	9 (5 to 13)		

Statistical analyses

Statistical analysis title	Unpaired T test
Comparison groups	Enalapril v control
Number of subjects included in analysis	65
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.05
Method	t-test, 2-sided

Adverse events

Adverse events information	
Timeframe for reporting adverse events:	
Overall trial	
Assessment type	Non-systematic

Dictionary used	
Dictionary name	SNOMED CT
Dictionary version	2015

Reporting groups	
Reporting group title	Enalapril
Reporting group description: -	
Reporting group title	Control
Reporting group description: -	

Serious adverse events	Enalapril	Control	
Total subjects affected by serious adverse events			
subjects affected / exposed	5 / 39 (12.82%)	4 / 39 (10.26%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	
Respiratory, thoracic and mediastinal disorders			
Chronic obstructive pulmonary disease			
subjects affected / exposed	5 / 39 (12.82%)	4 / 39 (10.26%)	
occurrences causally related to treatment / all	0 / 5	0 / 4	
deaths causally related to treatment / all	0 / 0	0 / 0	

Frequency threshold for reporting non-serious adverse events: 5 %

Non-serious adverse events	Enalapril	Control	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	1 / 39 (2.56%)	0 / 39 (0.00%)	
Respiratory, thoracic and mediastinal disorders			
Cough			
subjects affected / exposed	1 / 39 (2.56%)	0 / 39 (0.00%)	
occurrences (all)	1	0	

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