A randomised controlled trial of the effect of angiotensin-converting enzyme inhibitors on pulmonary regurgitation, biventricular volume, mass and function, integrated cardiopulmonary exercise and cardiac autonomic reflexes late after Tetralogy of Fallot repair. The APPROPRIATE study (Ace inhibitors for PRevention Of Pulmonary Regurgitation In Adults with TEtralogy)

Submission date	Recruitment status No longer recruiting	Prospectively registered		
06/07/2005		☐ Protocol		
Registration date	Overall study status	Statistical analysis plan		
08/08/2005	Completed	[X] Results		
Last Edited	Condition category	[] Individual participant data		
05/11/2010	Circulatory System			

Plain English summary of protocolNot provided at time of registration

Contact information

Type(s)

Scientific

Contact name

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Contact details

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers BHF Project Grant PG/02/027

Study information

Scientific Title

Acronym

APPROPRIATE

Study objectives

Angiotensin-Converting Enzyme (ACE) inhibitor therapy reduces the degree of pulmonary regurgitation and improves right ventricular function, exercise capacity and baroreceptor sensitivity in patients with repaired Tetralogy of Fallot and pulmonary regurgitation.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Not provided at time of registration

Study design

Randomised controlled trial

Primary study design

Interventional

Secondary study design

Randomised controlled trial

Study setting(s)

Not specified

Study type(s)

Treatment

Participant information sheet

Health condition(s) or problem(s) studied

Repaired Tetralogy of Fallot

Interventions

Ramipril 10 mg once daily for six months compared to placebo (blister packaged capsules indistinguishable from the blister packaged active drug and also taken in increasing dose 2.5 mg for one week, then 5 mg for two weeks then 10 mg for rest of study).

All patients have two safety blood tests on the basis that they may be on ramipril. There is a protocol of openly changing to losartan in the circumstance of intractable cough. The trial is double blinded and all investigators remain blind as the study is ongoing.

Intervention Type

Drug

Phase

Not Specified

Drug/device/biological/vaccine name(s)

Ramipril

Primary outcome measure

Improvement in right ventricular function

Secondary outcome measures

- 1. Reduction in pulmonary regurgitant fraction
- 2. Reduction of right ventricular volume
- 3. Reduction of right ventricular mass
- 4. Reduction of left ventricular volume
- 5. Improvement of left ventricular systolic function
- 6. Improvement of exercise performance
- 7. Improvement in baroreceptor sensitivity and heart rate variability

Overall study start date

01/10/2002

Completion date

14/07/2005

Eligibility

Key inclusion criteria

All patients with repaired Tetralogy of Fallot and moderate or more pulmonary regurgitant fraction.

Participant type(s)

Patient

Age group

Adult

Sex

Both

Target number of participants

25-30 in each arm

Key exclusion criteria

- 1. Known allergy or hypersensitivity to ACE-inhibitors
- 2. History of coronary artery disease
- 3. Pulmonary stenosis more than mild
- 4. Unable to undertake Cardiovascular Magnetic Resonance (permanent pacemaker, electrical device etc.)
- 5. Renal failure, assessed from patients clinical notes and baseline biochemistry check.
- 6. Ongoing ACE-inhibitor therapy
- 7. Pregnancy/breastfeeding/planning to conceive during participation
- 8. Systolic blood pressure less than 90 mmHg
- 9. Hyperkaliemia (K+ levels more than 5.5 mEq/l)
- 10. Refusal to give informed consent

Date of first enrolment

01/10/2002

Date of final enrolment

14/07/2005

Locations

Countries of recruitment

England

United Kingdom

Study participating centre Adult Congenital Heart Unit

London United Kingdom SW3 6NP

Sponsor information

Organisation

British Heart Foundation (UK)

Sponsor details

14 Fitzhardinge Street London United Kingdom W1H 6DH +44 (0)20 7935 0185 research@bhf.org.uk

Sponsor type

Charity

Website

http://www.bhf.org.uk

ROR

https://ror.org/02wdwnk04

Funder(s)

Funder type

Charity

Funder Name

British Heart Foundation

Alternative Name(s)

the_bhf, The British Heart Foundation, BHF

Funding Body Type

Private sector organisation

Funding Body Subtype

Trusts, charities, foundations (both public and private)

Location

United Kingdom

Funder Name

Project Grant PG/02/027

Results and Publications

Publication and dissemination plan

Not provided at time of registration

Intention to publish date

Individual participant data (IPD) sharing plan

IPD sharing plan summaryNot provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	09/02/2012		Yes	No