# Copper (II) chelation therapy in the treatment of hypertrophic cardiomyopathy (HCM)

Submission date 08/01/2015	<b>Recruitment status</b> No longer recruiting	<ul><li>Prospectively registered</li><li>Protocol</li></ul>
Registration date 09/01/2015	<b>Overall study status</b> Completed	<ul> <li>[_] Statistical analysis plan</li> <li>[X] Results</li> </ul>
Last Edited 04/11/2020	<b>Condition category</b> Circulatory System	Individual participant data

### Plain English summary of protocol

Background and study aims

Hypertrophic cardiomyopathy (HCM) is the most common inherited heart condition. One in every 500 people have the condition and there are one million sufferers in Europe. It is a disorder of the heart muscle (myocardium) itself results in

heart muscle thickening (hypertrophy) and scarring (fibrosis). This condition can cause disturbances in heart rhythms which can cause sudden death, indeed HCM is the leading cause of sudden death in young (<35 years old) people. HCM hearts process energy inefficiently, and progressive heart failure can also develop. There are currently no treatments that alter the natural history of the disease. It is not clear how the faulty gene causes the muscle to become thickened, however current research suggests that it is a problem with our body cells not being able to use energy properly. Trientine is a medication used to treat Wilson disease, a rare disorder which leads to excess copper accumulation and tissue damage since 1969. It also acts on energy usage to improve it. Trientine has been found to reduce heart muscle hypertrophy in patients with diabetes. The aim of this study is to investigate whether Trientine will reduce the thickening of the heart in HCM patients, improve its energy efficiency and therefore represent the first disease modifying therapy in HCM.

Who can participate? Adults (aged at least 18) with HCM

### What does the study involve?

Partipicants are randomly allocated into one of two groups. Those in group 1 receive their usual care. Those in group 2 are given trientine for 6 months. All patients undergo cardiac magnetic resonance (CMR) imaging at the start of the study and then after 6 months of therapy. CMR assesses how the heart uses its energy, myocardial hypertrophy and fibrosis.

What are the possible benefits and risks of participating? Not provided at time of registration

Where is the study run from? Wythenshawe Hospital (UK) When is the study starting and how long is it expected to run for? October 2014 to October 2015

Who is funding the study? Medical Research Council (UK)

Who is the main contact? Dr Anna Reid

### **Contact information**

**Type(s)** Scientific

**Contact name** Dr Anna Reid

Contact details

Wythenshawe Hospital Southmoor Road Wythenshawe Manchester United Kingdom M23 9LT

# Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers 17776

# Study information

### Scientific Title

Copper chelation in hypertrophic cardiomyopathy: open-label pilot study of trientine in patients with hypertrophic cardiomyopathy

### **Study objectives**

Trientine will lead to left ventricular mass regression in hypertrophic cardiomyopathy, and improvement in myocardial energetics is associated with, or causative of, this LV regression.

**Ethics approval required** Old ethics approval format

Ethics approval(s)

NRES Committee North West- Liverpool East, 26/06/2014, ref: 14/NW/1015

### Study design

Non-randomised; Interventional

**Primary study design** Interventional

### Secondary study design

Randomised controlled trial

### Study setting(s)

Hospital

### Study type(s)

Treatment

### Participant information sheet

Not available in web format, please use the contact details to request a patient information sheet

### Health condition(s) or problem(s) studied

Topic: Cardiovascular disease; Subtopic: Cardiovascular (all Subtopics); Disease: Cardiovascular

### Interventions

Using trientine to assess if it improves fitness and heart function to improve treatment options for HCM. Participants will receive trientine for 6 months.

### Intervention Type

Drug

**Phase** Not Applicable

### Drug/device/biological/vaccine name(s)

Trientine

### Primary outcome measure

Myocardial energetics, measured using cardiac MRI prior to starting treatment and at the end of treatment

Secondary outcome measures N/A

**Overall study start date** 01/10/2014

**Completion date** 01/10/2015

# Eligibility

### Key inclusion criteria

1. Male or female > 18 years of age

2. Females will be non-pregnant and non-lactating with no intention of pregnancy during study treatment (see point 6)

3. Confirmed diagnosis of HCM in line with 2011 ACCF / AHA consensus document

4. Positive genotype

5. LV ejection fraction = 50%

6. Women of childbearing potential (not >1 year post-menopausal) must agree to use one of the following acceptable birth control methods:

6.1. True complete abstinence when this is in line with the preferred and usual lifestyle of the subject

6.2. Surgical sterilization of either the female subject in study (e.g., bilateral tubal ligation) or of her male partner (vasectomy with documented azoospermia) if he is the sole partner of that subject

6.3. Established progesterone-only hormonal contraception (implantable, patch, oral or intramuscular [IM]) administered for at least one month prior to study medication administration 6.4. Double barrier method: condom and occlusive cap (diaphragm) with spermicidal foam/gel /film/ cream/suppository

### Participant type(s)

Patient

Age group

Adult

Lower age limit 18 Years

**Sex** Both

**Target number of participants** Planned Sample Size: 20; UK Sample Size: 20

### Total final enrolment

20

### Key exclusion criteria

1. History of any other cardiovascular disorder, including aortic stenosis, aortic coarctation, hypertension, renal artery stenosis, atrial fibrillation

2. NYHA Class III/IV heart failure

3. Diabetes mellitus

- 4. Contraindication to magnetic resonance imaging (MRI) scanning (including claustrophobia)
- 5. Known hypersensitivity to Trientine or excipients
- 6. Known hypersensitivity to Gadolinium-based contrast agent
- 7. eGFR < 50ml/min/1.73m2
- 8. BMI > 40kg/m2
- 9. History of significant malabsorption

- 10. Copper deficiency at baseline
- 11. Iron deficiency at baseline
- 12. Haemoglobin < 10g/dL
- 13. Unresolved haematological disorder
- 14. Severe hepatic impairment
- 15. Untreated thyroid disease
- 16. Autoimmune disorders/connective tissue disease
- 17. Drug or alcohol abuse

18. Pregnancy/breast-feeding. Women of childbearing potential (not >2 years post- menopausal and/or not surgically sterilised) must have a negative blood serum pregnancy test, performed at visit 1 prior to administration of study medication

19. Any clinically significant or unstable medical or psychiatric condition that would interfere with the patient's ability to participate in the study

20. Any other condition, which in the opinion of the research team, may put participants at risk during the study, or which may affect the outcome of the study

21. New medication within the preceding month of the study (excluding short term prescriptions)

22. Participation in another study involving an investigational product in the previous 12 weeks

### Date of first enrolment

06/01/2015

### Date of final enrolment

01/10/2015

### Locations

#### **Countries of recruitment** England

United Kingdom

#### **Study participating centre Wythenshawe Hospital** Southmoor Road Wythenshawe Manchester United Kingdom

M23 9LT

### Sponsor information

### **Organisation** University Hospital of South Manchester NHS Foundation Trust

### Sponsor details

Southmoor Road Wythenshawe Manchester England United Kingdom M23 9LT

**Sponsor type** Hospital/treatment centre

ROR https://ror.org/00he80998

# Funder(s)

**Funder type** Government

Funder Name Medical Research Council

Alternative Name(s) Medical Research Council (United Kingdom), UK Medical Research Council, MRC

**Funding Body Type** Government organisation

Funding Body Subtype National government

**Location** United Kingdom

### **Results and Publications**

**Publication and dissemination plan** To be confirmed at a later date

Intention to publish date

Individual participant data (IPD) sharing plan

**IPD sharing plan summary** Not provided at time of registration

Study outputs					
Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<u>Results article</u>	results	01/08/2017	04/11/2020	Yes	Νο