ISRCTN32052878 https://doi.org/10.1186/ISRCTN32052878

Studying Cough in Asthma phenotypes

Submission date
09/09/2013

Recruitment status
No longer recruiting

Registration date
29/11/2013

Overall study status
Completed

Last Edited
24/01/2017

Condition category
Respiratory

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Asthma is a common disorder of the small tubes that carry air in and out of the lungs (airways). Patients with asthma intermittently complain of symptoms such as wheezing, coughing, shortness of breath and chest tightness during asthma attacks. However, some asthmatics do not describe all of the classical symptoms detailed above, whilst others only have one main symptom, such as cough. Some patients have symptoms triggered by different things like pollen, cold air, exercise or taking medication like aspirin or ibuprofen.
We also now understand that some asthmatics respond to treatment in different ways or develop asthma at different ages. This has led doctors to realise that asthma is not one disease but a group of different diseases and we need to better understand the actual mechanism of how asthma patients experience symptoms within these groups.
This study aims to understand cough in asthmatics. We hope to show differences in cough responses within asthmatics, particularly allergic and non-allergic asthmatics. This study could therefore help us develop new medications to specifically target cough in asthmatics.

Who can participate?
In this study we aim to recruit 100 volunteers (aged over 18 years) with stable mild to moderate asthma from the Manchester area to attend either the University Hospital of South Manchester NHS Foundation Trust or The Wellcome Trust Clinical Research Facility, depending on their location.

What does the study involve?
The study involves attending a participating centre for three visits, described below:
Visit 1: This visit will last about 1 hour. A researcher will ask the participants questions about their medical history, including asthma, smoking history, allergies and details of any medications being taken. A physical examination will be performed which includes measuring height and weight, listening to the chest and recording blood pressure. Basic observations will be performed which include recording heart rate, oxygen saturation and respiratory rate.
During this visit participants will be asked to perform an exhaled nitric oxide test by exhaling into a mouthpiece, breathing out at different speeds. We will analyse the gas in the airways by asking participants to breathe into a bag (called a Breath Test). A simple lung function test called spirometry will also be performed to measure the amount of air in the lungs. We will ask participants to complete two questionnaires designed to understand how well their asthma is controlled and how coughing affects their daily life.

Lastly, participants will be fitted with a cough monitor which will record the number of times they cough over a period of 24 hours.
Visit 2: This visit will last about 1 hour and 30 minutes. During this visit participants will be asked to provide a blood sample (about 3 teaspoons) to check for any evidence of allergy or proteins which may alter the way the nerves work. We will perform a skin allergy test. A methacholine challenge test will be performed, which involves inhaling a mist containing different concentrations of methacholine. Participants will be asked to perform sputum induction, which requires the inhalation of a salty mist through a nebuliser which will provoke the production of sputum (phlegm). We will ask participants to record their best (of three) peak flow measurements in the morning and evening for 1 week after visit 2. We will provide them with a peak flow meter and diary.
Visit 3: This visit will last about 45 minutes. A researcher will perform some breathing tests before the start of the test to ensure it is safe for participants to undergo a cough challenge. A cough challenge is a test designed to make you to cough. Participants will be asked to take a breath of a weak solution called capsaicin (chilli pepper extract) through a nebulizer machine. A cough monitor will be re-attached for the duration of the test using a clothing clip only to capture coughing.
All participants will receive the same interventions.

What are the possible benefits and risks of participating?
There will be no direct benefit for participants in this study. However, we hope that the results of this study will help us to understand the mechanisms of chronic cough and improve treatments in the future.
We do not foresee any significant risks associated with taking part in this study. Capsaicin (chilli pepper extract) inhalation is a well-established safe technique and no associated serious adverse events have been reported. The main side effects are an irritation or burning sensation at the back of the throat.

Where is the study run from?
This is a multicentre study and is taking place at the University Hospital of South Manchester NHS Foundation Trust (lead centre) and The Wellcome Trust Clinical Research Facility, UK.

When is the study starting and how long is it expected to run for?
Recruitment started in September 2013 and the study will finish in September 2014.

Who is funding the study?
The study is being funded internally by the University of Manchester (UK) as part of a PhD qualification. Salary costs are being funded by the Respiratory and Allergy Clinical Research Facility, UK.

Who is the main contact?
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Contact information

Type(s)
Scientific

Contact name
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Additional identifiers

Protocol serial number
13/COA/002

Study information

Scientific Title
Studying Cough in Asthma phenotypes

Acronym
CoAst

Study objectives
Atopic asthmatics will have heightened cough response to inhaled capsaicin, which may be attributable to a change in nerve function mediated by neurotrophins.

Ethics approval required
Old ethics approval format

Ethics approval(s)
NRES Committee North West - Preston, 08/07/ 2013, ref: 13/NW/0403

Primary study design
Observational

Study design
Observational multi-centre study

Study type(s)
Diagnostic

Health condition(s) or problem(s) studied
Mild to moderate asthmatics

Interventions

This study involves a number of tests which are designed to understand the mechanisms of cough in asthma and include: exhaled nitric oxide, breath test, spirometry, 24 hr cough monitoring, skin allergy test, methacholine challenge test, a blood test, sputum induction, peak flow monitoring, a cough challenge test and completion of questionnaires.

Intervention Type
Other

Phase
Not Applicable

Primary outcome(s)
The influence of allergic inflammation on capsaicin dose response curves (ED50/Emax)* in mild to moderate asthmatics.

* Emax is the maximum number of coughs provoked and ED50 is the capsaicin dose provoking half the Emax. Primary and secondary outcomes will be measured at baseline only.

Key secondary outcome(s)
The influence of airway hyper-responsiveness (PD20 Methacholine), and serum/plasma neurotrophin levels on ED50 and Emax will also be explored and their relationships with 24 hr cough frequency and Leicester cough questionnaire (LCQ) and asthma control (ACQ).

Completion date
15/09/2014

Eligibility

Key inclusion criteria
1. Aged 18 years or over
2. Person with a primary or secondary care doctor diagnosis of asthma
3. The subject is treated with:
3.1. Short-acting beta 2 agonist
3.2. AND/OR inhaled corticosteroid (≤500 mcg fluticasone propionate daily or equivalent)
3.3. AND/OR a long-acting beta 2 agonist
3.4. AND/OR a leukotriene receptor antagonist
4. Controlled or has partial asthma control according to the GINA classification

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex
All

Key exclusion criteria
1. Symptoms of upper respiratory tract infection (URTI) in the last 1 month which have not resolved.
2. Lower respiratory tract infection or pneumonia in the last 6 weeks.
3. Current smoker or ex-smoker with ≥10 pack-year smoking history, abstinence of 6 months or lesser
4. Asthma exacerbation in the previous month requiring an increase or starting of an ICS or OCS
5. Asthma medication which includes theophylline or anti-cholinergic drugs.
6. Subject has changed asthma medication within the past 4 weeks prior to screening
7. A previous asthma exacerbation requiring Intensive Care Unit (ICU) admission.
8. Significant other primary pulmonary disorders, in particular; pulmonary embolism, pulmonary hypertension, interstitial lung disease, lung cancer, cystic fibrosis, emphysema or bronchiectasis.
9. Pregnancy or breast-feeding
10. Use of ACE inhibitors
11. Any centrally acting medication which in the view of the investigator could alter the sensitivity of the cough reflex
12. History of psychiatric illness, drug or alcohol abuse which may interfere in the participation of the trial.

Date of first enrolment
16/09/2013

Date of final enrolment
15/09/2014

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
University Hospital of South Manchester NHS Foundation Trust
Southmoor Road
Wythenshawe
Manchester
United Kingdom
M23 9LT

Sponsor information

Organisation
University Hospital of South Manchester NHS Foundation Trust (UK)

ROR
https://ror.org/00he80998

Funder(s)

Funder type
University/education

Funder Name
University of Manchester (UK) - funded internally

Funder Name
Respiratory and Allergy Clinical Research Facility (UK) - funded salary costs

Results and Publications

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?
Results article	results	01/03/2017		Yes	No
HRA research summary			28/06/2023	No	No