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# Citric acid cough challenge validation

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| **Submission date**<br>05/06/2009 | **Recruitment status**<br>No longer recruiting | [_] Prospectively registered<br>[_] Protocol<br>[_] Statistical analysis plan<br>[X] Results<br>[_] Individual participant data |
| **Registration date**<br>18/09/2009 | **Overall study status**<br>Completed | |
| **Last Edited**<br>25/09/2012 | **Condition category**<br>Signs and Symptoms | |

**Plain English summary of protocol**
Not provided at time of registration

## Contact information

**Type(s)**
Scientific

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## Additional identifiers

**Protocol serial number**
AcadMed CTU04/05

## Study information

**Scientific Title**
Validation of the citric acid cough challenge using the KoKo DigiDoser system in healthy volunteers: a 4-week randomised single centre crossover study

**Study objectives**

The citric acid cough challenge was first reported in humans over 50 years ago. The test was established to allow for the quantification of cough and also as a tool for the assessment of antitussive properties of certain therapies. Since this time many different protocols have been published to measure cough reflex sensitivity these can vary in terms of the nebuliser used, tussive agent, single breath, single dose, dose response and number of coughs required to attain a threshold. In our opinion a definitive method for measuring cough sensitivity needs to be established to allow for standardisation of results from different groups to be compared. The standardisation of this test will lead to a higher quality of research, better drug development and ultimately better patient care.

## Ethics approval required
Old ethics approval format

## Ethics approval(s)
Hull and East Riding Local Research Ethics Committee approved on the 26th April 2006 (ref: 06 /Q1104/46)

## Study design
Randomised single centre crossover study

## Primary study design
Interventional

## Study type(s)
Diagnostic

## Health condition(s) or problem(s) studied
Artificially induced cough

## Interventions
Volunteers were randomised for the order methods to induce artificial cough, i.e., whether the Mefar dosimeter was used first or the KoKo DigiDoser.

The following assessments were then performed:
1. Impulse oscillometry
2. Spirometry
3. Citric acid cough challenge

## Intervention Type
Other

## Phase
Not Applicable

## Primary outcome(s)
Reproducibility of cough reflex sensitivity to citric acid (measured via inhalation of incremental, doubling concentrations of citric acid until the concentration inducing two or more coughs or five or more coughs is reached)using the modified Devilbiss 646 nebuliser powered by the KoKo DigiDoser. Measured within 1 day comparing baseline challenge and challenges at 1, 2 and 4 hours post-baseline to measure within-day reproducibility.

### Key secondary outcome(s))
To compare the reproducibility of cough reflex sensitivity using the modified Devilbiss 646 nebuliser powered by the KoKo DigiDoser with that of the more commonly used MB2 nebuliser powered by the MB3 mefar dosimeter. Assessed at baseline and then two weeks later to assess between-day reproducibility.

### Completion date
19/10/2006

## Eligibility

### Key inclusion criteria
1. Healthy male/female volunteers
2. Male and female subjects of at least 18 years of age
3. Non-smokers or, ex-smokers of at least 12 months
4. Forced expiratory volume in one second (FEV1) greater than 80% of predicted

### Participant type(s)
Patient

### Healthy volunteers allowed
No

### Age group
Adult

### Lower age limit
18 years

### Sex
All

### Key exclusion criteria
1. Female subjects who are pregnant, or lactating, or who are of child bearing potential but are not using contraceptive measures
2. Suffering from any active seasonal allergies
3. Suffering from concomitant disease which may interfere with study procedures or evaluation.
4. Subjects suffering from gastroesophageal reflux taking proton pump inhibitors or any other regular antacid therapy
5. Subjects suffering from post nasal drip syndrome
6. A recent respiratory tract infection within 6 weeks prior to entry on to study
7. Use of medications known to alter the cough reflex
8. Smoking history of greater than 10 pack years

### Date of first enrolment
04/07/2006

### Date of final enrolment
19/10/2006

# Locations

### Countries of recruitment
United Kingdom

England

### Study participating centre
**Respiratory Medicine**
Cottingham
United Kingdom
HU16 5JQ

# Sponsor information

### Organisation
Hull and East Yorkshire Hospitals NHS Trust (UK)

### ROR
https://ror.org/01b11x021

# Funder(s)

### Funder type
Government

### Funder Name
Hull and East Yorkshire Hospitals NHS Trust (UK) - Research and Development Grant

# 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 | | | | |

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|---|---|---|---|---|---|
| Results article | | 10/08/2010 | | Yes | No |
| Participant information sheet | Participant information sheet | 11/11/2025 | 11/11/2025 | No | Yes |