Does ACE phenotype predict the acute antihypertensive response to ACE inhibition?

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON30335

Source
ToetsingOnline

Brief title
not available

Condition

- Other condition

Synonym
arterial hypertension, high blood pressure

Health condition

hypertensie

Research involving
Human

Sponsors and support

Primary sponsor: Erasmus MC, Universitair Medisch Centrum Rotterdam
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: ACE-inhibitor, angiotensin-converting enzyme, Hypertension

Outcome measures

Primary outcome

Relation between plasma ACE level (ACE-phenotype) and, placebo-controlled,

acute antihypertensive response before and after preadministration of a

thiazide diuretic.

Secondary outcome

Effect of ACE gene polymorfism (ID, DD and II) on plasma ACE-level.

Study description

Background summary

Inhibition of angio-converting enzyme (ACE) is one of the cornerstones of the medical treatment of hypertension. Although ACE inhibitors on average are effective antihypertensive agents, the blood pressure response to these agents between subjects is highly variable. This variation in part depends on the extent the renin-angiotensin system is activated, but supposedly also depends to a large extent on (tissue) ACE activity. ACE activity shows a large inter-individual variation, which only partly can be explained by the frequently occurring polymorphysism (II, ID and DD) of the gene encoding for ACE.

Study objective

The aim of our study is to find out if and if so to what extent the acute blood pressure lowering response to ACE-inhibition depends on the variation in the ACE-phenotype. If the blood pressure response depends on ACE acitivity, measurement of ACE-activity prior to starting antihypertensive therapy can be used as a simple tool to select proper antihypertensive therapy, making

individualized antihypertensive therapy instead of the usual trial and error approach possible.

Study design

The study is conducted as a single-blind, partly placebo-controlled, randomised trial. At an interval of three weeks patients receive either a single acute dose of an ACE-inhibitor (enalapril 20 mg) or a single placebo. Under standardized conditions blood pressure is measured for 24-hours by means of an ambulatory blood pressure monitor and blood for determination of ACE-activity, ACE-concentration and other components of the renin-angiotensin system is sampled at regular intervals. The blood pressure response to a single dose of the ACE-inhibitor is also studied at a third study day after pretreatment with a low dose of a thiazide diuretic (hydrochlorothiazide 12.5 mg once daily). With this approach it can be found out if acitvation of the renin-angiotensin system is a more important determinant of the acute blood pressure response to an ACE-inhibitor than ACE-activity itself. Each study day is separated by a rest period of three weeks. All participants are adviced about a normal salt intake of 6 grams daily.

Intervention

The interventions consist of administration of a single oral dose of an ACE-inhibitor or placebo as well a administration of a single oral dose of an ACE-inhibitor after pretreatment with a thiazide diuretic (hydrochlorothiazide 12.5 mg once daily) for one week.

Study burden and risks

The burden is only the time investment. Per patient three study days are planned. During these days patients are at the research room for 6 hours.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Essential hypertension grade 1 or 2
Age 18-70 yrs
Male or female

Exclusion criteria

History of cardiovascular disease
Secondary forms of hypertension
Grade 3 hypertension
Pregnancy or nursing

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Single blinded (masking used)

Control:	Placebo
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	01-03-2007
Enrollment:	30
Type:	Actual

Medical products/devices used

Product type:	Medicine
Brand name:	hydrochlorothiazide
Generic name:	hydrocholorthiazide
Registration:	Yes - NL intended use
Product type:	Medicine
Brand name:	renitec
Generic name:	enalapril-maleat
Registration:	Yes - NL intended use

Ethics review

Approved WMO

Date:	10-11-2006
Application type:	First submission
Review commission:	METC Erasmus MC, Universitair Medisch Centrum Rotterdam (Rotterdam)

Approved WMO

Date:	22-12-2006
Application type:	First submission
Review commission:	METC Erasmus MC, Universitair Medisch Centrum Rotterdam (Rotterdam)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
EudraCT	EUCTR2006-004250-25-NL
CCMO	NL14024.078.06
Other	not available