ISRCTN93126600 https://doi.org/10.1186/ISRCTN93126600

Does the ALDOsterone:RENin ratio predict the efficacy of spironolactone over bendroflumethiazide in hypertension?

Submission date 21/03/2007	**Recruitment status** No longer recruiting	[_] Prospectively registered [X] Protocol [_] Statistical analysis plan [X] Results [_] Individual participant data
Registration date 13/04/2007	**Overall study status** Completed	
Last Edited 28/09/2018	**Condition category** Circulatory System	

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

Contact name
Prof Thomas MacDonald

Contact details
Level 7
Hypertension Research Centre
Ninewells Hospital and Medical School
Dundee
United Kingdom
DD1 9SY
+44 (0)1382 632852
t.m.macdonald@dundee.ac.uk

Additional identifiers

Protocol serial number
N/A

Study information

Scientific Title

Does the ALDOsterone:RENin ratio predict the efficacy of spironolactone over bendroflumethiazide in hypertension?

Acronym
RENALDO

Study objectives
Primary objective:
To test the hypothesis that the aldosterone:renin ratio predicts the antihypertensive response to spironolactone, specifically that the effect of spironolactone 50 mg is greater than that of bendroflumethiazide 2.5 mg in hypertensive subjects with high aldosterone:renin ratios.

Secondary objectives: to determine whether -
1. Bendroflumethiazide induces adverse metabolic abnormalities, especially in subjects with high aldosterone:renin ratios
2. Baseline renin measurement predicts the antihypertensive response to spironolactone and/or bendroflumethiazide

Ethics approval required
Old ethics approval format

Ethics approval(s)
The main study and sub-studies have ethical approval from Tayside Committee on Medical Research Ethics and West Ethics Committee on the 20th June 2002 (ref: 2006/01).

Study design
A double-blind, randomised, crossover, controlled trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Hypertension/cardiovascular diseases

Interventions
120 hypertensive subjects are randomised to 12 weeks treatment with spironolactone 50 mg once daily and 12 weeks treatment with bendroflumethiazide 2.5 mg once daily. The two treatment periods are separated by a two-week washout period.

Investigators and subjects do not know the order of the treatment periods, which is according to a computer generated randomisation list. Randomisation is stratified by aldosterone:renin ratio to include equal numbers of subjects with high and low aldosterone:renin ratios. This is necessary as in an unselected population, only 15% of subjects will have an aldosterone:renin ratio greater than 750.

Intervention Type
Drug

Phase
Not Specified

Drug/device/biological/vaccine name(s)
Spironolactone, bendroflumethiazide

Primary outcome(s)
The primary endpoint is the difference in mean 24-hour blood ambulatory pressure recorded at the end of each 12-week treatment period.

Key secondary outcome(s))
Secondary endpoints include the differences between the following measurements taken at the end of each 12-week treatment period:
1. Mean daytime ambulatory blood pressure
2. Mean night time ambulatory blood pressure
3. Mean clinic blood pressure defined as mean of mean clinic BPs on both penultimate and final days of treatment periods
4. Clinical biochemistry measurements of plasma potassium (K+), magnesium (Mg2+), creatinine, triglycerides, cholesterol and High Density Lipoprotein (HDL) cholesterol

Completion date
01/02/2006

Eligibility

Key inclusion criteria
1. Mild-to-moderate hypertension with daytime mean Ambulatory Blood Pressure Monitoring (ABPM) systolic Blood Pressure (BP) greater than 140 mmHg
2. Either untreated or on stable treatment for at least two weeks
3. Either:
a. aldosterone:renin ratio greater than 750 and plasma aldosterone greater than 250 pmol/l, or
b. aldosterone:renin ratio less than 300 and plasma renin activity less than 10 ng/ml/h
4. No clinically significant abnormalities on screening laboratory results
5. Written informed consent

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Not Specified

Sex
Not Specified

Key exclusion criteria
1. Females of child-bearing potential not using reliable contraception
2. Subjects on more than four classes of anti-hypertensive drugs at screening

3. Secondary hypertension other than hyperaldosteronism
4. Addisons disease
5. Severe or malignant hypertension
6. Subjects who take and are unable to discontinue taking a thiazide diuretic or potassium sparing diuretic
7. Serum potassium less than 3.3 or greater than 5 mmol/l two weeks after discontinuing diuretics
8. Serum creatinine greater than 160 µmol/l
9. Subjects intolerant of spironolactone or thiazide diuretics
10. Subjects who have taken spironolactone or potassium canrenoate in the previous three months
11. Previous Myocardial Infarction (MI) or Cardiovascular Accident (CVA)
12. Chronic Heart Failure (CHF)
13. Any condition that would:
a. interfere with the ability to provide informed consent
b. place at increased risk
c. confound interpretation of results

Date of first enrolment
01/08/2002

Date of final enrolment
01/02/2006

Locations

Countries of recruitment
United Kingdom

Scotland

Study participating centre
Level 7
Dundee
United Kingdom
DD1 9SY

Sponsor information

Organisation
Ninewells Hospital & Medical School (UK)

ROR
https://ror.org/039c6rk82

Funder(s)

Funder type
Government

Funder Name
Chief Scientist Office, Scottish Executive Health Department (UK) (ref: BA-01-25)

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	01/01/2010		Yes	No
Protocol article	protocol	09/05/2007		Yes	No