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OUTREACH study: Urine analysis and antihypertensive treatment

Submission date	**Recruitment status**	[X] Prospectively registered
04/12/2017	No longer recruiting	[ ] Protocol
Registration date	**Overall study status**	[ ] Statistical analysis plan
07/12/2017	Completed	[ ] Results
Last Edited	**Condition category**	[ ] Individual participant data
16/10/2024	Circulatory System	[ ] Record updated in last year

Plain English summary of protocol

Background and study aims
High blood pressure (also called hypertension) is a condition that affects more than 1 in 4 adults. It can strain the heart and the blood vessels, and increase the risk of stroke, heart attack, heart failure, kidney damage, and death. Failure to take medication as prescribed (i.e. non-adherence) is believed to be common in hypertension because it rarely has noticeable symptoms. The patients recruited in this study will be asked to provide a urine sample at the hypertension clinic to find out if they take their blood pressure medication as prescribed. A group of non-adherent patients participate in a simple 5-step (Discuss/Explore/Act/Co-operate/Reinforce) intervention in which the patient and the treating doctor will discuss the test result, the reasons for not taking the medication as prescribed, and useful measures to improve adherence. The aim of this study is to test if the 5-step intervention helps non-adherent patients to comply with their treatment and lower their blood pressure.

Who can participate?
Adults aged 18 and older who are taking medications for hypertension.

What does the study involve?
Participants taking part in the study will be asked to provide urine samples (four in total), to complete some questionnaires (on three occasions) and also to take an automatic monitor home to check their blood pressure three times in the morning and three times in the evening over a period of seven days (on four occasions). The home-based blood pressure monitors and diaries are returned to the hospital. Adherence, health outcomes and care costs are measured and compared with groups of non-adherent and adherent patients who did not receive the intervention.

What are the possible benefits and risks of participating?
There is no guarantee that this trial will help participants directly but the information obtained from this study may help improve the treatment of people who suffer from high blood pressure and are at risk of heart disease. The potential benefit of this study will be that hypertensive patients at risk of heart disease may be able to be assessed, diagnosed and treated better. Study participants will have to attend additional visits, however, a study voucher will be offered to use at the hospital when attending the visits related to the study (parking costs and refreshments).

Participants may experience local discomfort on the arm when using the home-based blood pressure monitor if the cuff is of the incorrect size or over-inflated. Instructions on how to use the monitor will be provided by the nurse at each visit to reduce the risk.

Where is the study run from?
University of Manchester (UK)

When is the study starting and how long is it expected to run for?
September 2017 to September 2023

Who is funding the study?
British Heart Foundation (BHF) (UK)

Who is the main contact?
Marta Ahmed (Project Manager)
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Contact information

Type(s)
Scientific

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

Integrated Research Application System (IRAS)
229352

ClinicalTrials.gov (NCT)
NCT03293147

Protocol serial number
CPMS 36591, IRAS 229352

Study information

Scientific Title
BiOmarkers in Urine, anTihypeRtensive trEAtment and blood pressure Control in Hypertensive patients - OUTREACH Study

Acronym
OUTREACH

Study objectives
The study hypothesis is that providing partially or totally non-adherent hypertensive patients with information on their biochemical adherence test (HPLC-MS/MS-based urine test) combined with tailored targeting of the main reason(s) for the deviation from the prescribed antihypertensive treatment (HPLC-MS/MS-guided intervention), is superior to standard clinical care in improving clinical, behavioural and health-economy outcomes in hypertensive patients who are non-adherent to antihypertensive treatment.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 20/12/2017, North West - Greater Manchester South Research Ethics Committee (3rd Floor, Barlow House, 4 Minshull Street, Manchester, M1 3DZ; Email: nrescommittee.northwest-gmsouth@nhs.net), REC ref: 17/NW/0637

Study design
Randomized; Interventional; Design type: Treatment, Management of Care

Primary study design
Interventional

Study type(s)
Prevention

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

Interventions
The study is a prospective multi-centre randomised controlled trial.

Patient adherence to antihypertensive treatment is determined at baseline using an HPLC-MS /MS-based urine test. Participants taking part in the study are asked to sign a consent form and are required to attend up to five visits to the hospital outpatient clinic over the course of 1 year.

Non-adherent hypertensive patients at baseline are randomised in a 1:1 ratio to either usual clinical care plus HPLC-MS/MS-guided intervention (Arm A) or usual clinical care only (Arm B). The study also evaluates a cohort of patients who are adherent to antihypertensive treatment at baseline. Those adherent hypertensive patients receive the usual clinical care (Arm C). The main

purpose of involving this group of patients is to blind the clinical research staff to the adherence status of those patients randomised receiving standard care alone, to prevent introducing any bias in treating non-adherent patients.

Patients allocated to arm A receive at visit 3 the HPLC-MS/MS-guided intervention (the study intervention) which consists of providing patients with information on the results of their HPLC-MS/MS-based urine analysis combined with tailored targeting of the main reason(s) for the deviation from the prescribed antihypertensive treatment.

Patients allocated to arm B or arm C receive standard care for hypertensive patients at visit 3.

Previous:
All participants are followed-up 3 months and 9 months after the intervention at visit 4 (short-term follow-up) and visit 5 (long-term follow-up) respectively.

Updated 11/03/2021:
All participants are followed-up approximately 12 weeks and 20 weeks after the intervention at visit 4 (short-term follow-up) and visit 5 (long-term follow-up) respectively, or at first availability.

Intervention Type
Other

Primary outcome(s)
Mean clinic systolic blood pressure (SBP) is measured in clinic with the study M3 blood pressure monitor at baseline and visit 4.

Key secondary outcome(s))
1. Mean clinic systolic blood pressure (SBP) is measured in clinic with the study M3 blood pressure monitor at baseline and visit 5
2. Mean clinic diastolic blood pressure (DBP) is measured in clinic with the study M3 blood pressure monitor at baseline, visit 4 and visit 5
3. Mean daytime systolic blood pressure is measured in at home over a 7 days period with the study M3 blood pressure monitor at baseline, visit 4 and visit 5
4. Mean daytime diastolic blood pressure is measured in at home over a 7 days period with the study M3 blood pressure monitor at baseline, visit 4 and visit 5
5. Biochemical adherence is measured using the HPLC-MS/MS test on spot urine samples collected at baseline, visit 4 and visit 5
6. Urinary biomarker of target organ damage is measured by the urinary albumin / creatinine ratio (ACR) at baseline, visit 4 and visit 5
7. Patient quality of life is measured with the validated EQ-5D-3L questionnaire at baseline, visit 4 and visit 5
8. Patient wellbeing is measured with validated ICECAP-A at baseline, visit 4 and visit 5
9. The costs of clinical/social care patient is measured with the health care resource patient questionnaire (including primary and secondary care) at baseline, visit 4 and visit 5

Tertiary outcome measures:
1. Adherence conversion rate is measured the HPLC-MS/MS test on spot urine samples collected at baseline and visit 2
2. Patient’s psychological profile is assessed by several questionnaires at baseline, visit 4 and visit 5:
2.1. Patient’s anxiety and depression profile is measured by the Hospital anxiety and depression

Score (HADS)
2.2. Patient's perception of their illness is measured by the Brief illness perception questionnaire (B-IPQ)
2.3. Patient’s self-reported adherence to antihypertensive medications is measured by the Medication Adherence Report scale (MARS-5)
2.4. Patient’s main beliefs influencing antihypertensive medications intake is measured by the Belief about medicines questionnaire specific to hypertension (BMQ-Specific-11-hypertension) and the Belief about medicines questionnaire general combined with the perceived sensitivity to medicines (combined BMQ G12 & PSM)
2.5. Patients’ perceptions of the intrusiveness of antihypertensive medications is measured by the Treatment Intrusiveness Scale (TIS)

Completion date
30/09/2023

Eligibility

Key inclusion criteria
1. Male or female aged 18 years or above (min age 18 years old; no maximum age)
2. Patients previously diagnosed with and pharmacologically managed for hypertension
3. Patients with antihypertensive treatment with at least two antihypertensive medications
4. Patients willing and able to give informed consent for study inclusion including all study assessments

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
All

Total final enrolment
879

Key exclusion criteria
Current exclusion criteria as of 07/12/2022:
1. Recent history of admission to hospital relating to their hypertension or treatment with antihypertensive medications (< 2 weeks of baseline visit, including admission to A&E)
2. Refusal for 7-day home-based blood pressure monitoring
3. Self-reported pregnancy or breastfeeding
4. Female patients planning to conceive within the next 6 months

Previous exclusion criteria from 11/03/2021 to 07/12/2022:
1. Recent history of admission to hospital relating to their hypertension or treatment with antihypertensive medications (< 2 weeks of baseline visit, including admission to A&E)
2. Refusal for 7-day home-based blood pressure monitoring
3. Self-reported pregnancy or breastfeeding
4. Female patients planning to conceive within the next 12 months

Original exclusion criteria:
1. Recent history of admission to the hospital (<2 weeks of baseline visit, including admission to A&E)
2. Recent change in the prescribed antihypertensive medications (<2 weeks of baseline visit). Changes in antihypertensive drug dose are not considered an exclusion criterion if this is the only change within 2 weeks of the baseline visit
3. Refusal for 7-day home-based blood pressure monitoring
4. Self-reported pregnancy or breastfeeding
5. Female patients planning to conceive within the next 12 months

Date of first enrolment
18/12/2018

Date of final enrolment
04/02/2023

Locations

Countries of recruitment
United Kingdom

England

Scotland

Study participating centre
Manchester Royal Infirmary
Oxford Road
Manchester
United Kingdom
M13 9WL

Study participating centre
Glenfield General Hospital
Groby Road
Leicester
United Kingdom
LE3 9QP

Study participating centre
St Thomas' Hospital
Westminster Bridge Road
Lambeth
London
United Kingdom
SE1 7EH

Study participating centre
Ninewells Hospital
James Arrott Drive
Dundee
United Kingdom
DD2 1SY

Study participating centre
Epson & St. Helier University Hospital
Epsom
United Kingdom
KT17 1HB

Study participating centre
Homerton University Hospital
Homerton Row
London
United Kingdom
E9 6SR

Study participating centre
Royal Free Hospital
Pond Street
London
United Kingdom
NW3 2QG

Study participating centre
St Bartholomew's Hospital
William Harvey Heart Centre
Barts and The London School of Medicine and Dentistry
Charterhouse Square

London
United Kingdom
EC1M 6BQ

Study participating centre
UCLH
250 Euston Road
London
United Kingdom
NW1 2PQ

Study participating centre
Chilwell Valley and Meadows Practice
Chilwell Meadows Surgery
Ranson Road
Chilwell
Nottingham
United Kingdom
NG9 6DX

Study participating centre
Alvaston Medical Centre
14 Boulton Lane
Alvaston
Derby
United Kingdom
DE24 0GE

Study participating centre
University Hospitals Dorset NHS Foundation Trust
Management Offices
Poole Hospital
Longfleet Road
Poole
United Kingdom
BH15 2JB

Sponsor information

Organisation

The University of Manchester

ROR
https://ror.org/027m9bs27

Funder(s)

Funder type
Charity

Funder Name
British Heart Foundation

Alternative Name(s)
The British Heart Foundation, the_bhf, BHF

Funding Body Type
Private sector organisation

Funding Body Subtype
Trusts, charities, foundations (both public and private)

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated and/or analysed during the current study during this study will be included in the subsequent results publication.

IPD sharing plan summary
Other

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			26/07/2023	No	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes