ISRCTN40430183 https://doi.org/10.1186/ISRCTN40430183

Study of patients with severe high blood pressure referred to hospital for same-day specialist review

Submission date 10/08/2020	**Recruitment status** Recruiting	[X] Prospectively registered [X] Protocol [_] Statistical analysis plan [_] Results [_] Individual participant data [_] Record updated in last year
Registration date 05/10/2020	**Overall study status** Ongoing	
Last Edited 05/10/2020	**Condition category** Circulatory System	

Plain English summary of protocol

Background and study aims
Hypertension (high blood pressure) is a common condition in the developed world and is a leading cause of cardiovascular disease which in turn is a leading cause of death. Hypertension, even when severe, is usually asymptomatic and is often diagnosed incidentally. However, some individuals with severe hypertension develop rapidly worsening organ damage requiring urgent treatment. Current NICE guidance advises individuals with severe hypertension and emergency features should be referred for same-day specialist review, however, the NICE hypertension committee also highlighted a lack of evidence regarding who is most likely to benefit from same-day specialist review. As a result, same-day specialist assessment in severe hypertension has been recommended as a key area for research.

Who can participate?
Adults with severely raised blood pressure who are referred to a specialist for same-day review

What does the study involve?
The researchers shall take a single blood sample (33 ml, about 7 teaspoons), a small urine sample (up to 100 ml, about 20 teaspoons, or whatever the participant can manage) and a collection of urine over 24 hours. The 24-hour urine collection involves collecting all the urine the participant produces over a 24 hour period into a large urine bottle. This can be carried out at home. A second urine collection may be required if not already carried out by their usual medical team. The researchers will arrange a second visit 3 months after recruitment to the study. In this visit a second blood sample (25 ml, about 5 teaspoons), small urine sample (up to 100ml, about 20 teaspoons, or whatever the participant can manage) and a further collection of urine over 24 hours will be requested. The researchers also measure their blood pressure and ask for any updates to their medical conditions or medications since their initial visit. This is usually performed at an outpatient clinic in Nottingham but the researchers can visit the participant in their home if the participant finds it difficult to leave the house. At 1 year after recruitment, if the participant has given their consent to do so, the research team will review their electronic health records to record if the participant has developed a complication of high blood pressure such as a stroke or heart attack. If this data isn't available electronically, with their permission

the researchers contact their GP for this information or invite the participant back to the outpatient department for review. The same process will be repeated at 2, 5 and 10 years after recruitment. Whilst the researchers need their permission to review their records in this way, the participant would not need to be present when this electronic follow-up takes place.

What are the possible benefits and risks of participating?
No additional benefits. The blood tests may be mildly uncomfortable and may leave a small bruise.

Where is the study run from?
Nottingham University Hospitals NHS Trust (UK)

When is the study starting and how long is it expected to run for?
March 2020 to October 2038

Who is funding the study?
National Institute for Health Research (NIHR) (UK)

Who is the main contact?
Dr Mark Glover
mark.glover@nottingham.ac.uk

Contact information

Type(s)
Scientific

Contact name
Dr Mark Glover

ORCID ID
https://orcid.org/0000-0002-5155-0307

Contact details
University of Nottingham and Nottingham University Hospitals NHS Trust
Cardiovascular Sciences
D Floor South Block
Queen’s Medical Centre
Derby Road,
Nottingham
United Kingdom
NG7 2UH
+44 (0)115 8231063
mark.glover@nottingham.ac.uk

Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
CPMS 45225

Study information

Scientific Title
Study of patients with severe hypertension referred to hospital for same-day specialist review

Study objectives
At present, it is not clear which individuals are likely to benefit from same-day specialist review of their severe hypertension. Referring all individuals with severe hypertension would be a strain on the health service and is likely to result in inappropriate investigations and treatment for many individuals. However, individuals with severe hypertension that is rapidly causing organ damage need identification. The lack of evidence in this area was highlighted by the NICE hypertension committee as part of the 2019 Hypertension guidance update and the area of Severe Hypertension and same-day assessment has been recommended as a key area for research. Through this study the researchers aim to define the natural history of those with severe hypertension referred for same-day specialist review.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 04/07/2020, East Midlands – Nottingham 1 Research Ethics Committee (The Old Chapel, Royal Standard Place, Nottingham, NG1 6FS, UK; no telephone number provided; Nottingham1.rec@hra.nhs.uk), ref: 20/EM/0085

Study design
Observational case-controlled study

Primary study design
Observational

Study type(s)
Screening

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

Interventions
The researchers aim to carry out an observational study comparing the natural history of individuals with severe hypertension referred for same-day specialist review with a control group of individuals with isolated severe hypertension referred for outpatient assessment in the hypertension clinic.

For cases, potential participants with severe hypertension referred for same-day review will be identified by their usual healthcare team within acute medicine. If they wish to consider

participation the researchers will explain the study, provide written information in the form of a participant information sheet. If an individual wishes to take part the researchers will obtain informed written consent. Once recruited to the study they will record clinical information from the participants' medical notes concerning their medical history, medications and relevant observations and investigation results. They will take a blood sample of approximately 33 ml to look at electrolytes and hormones relevant to hypertension and for DNA extraction to look specifically at genes relevant to hypertension such as those controlling salt and water transport in the kidneys. A spot urine sample of up to 100 ml will be collected in order to characterise the urine salt transporter profile.
The researchers will request participants then complete a 24-hour urine collection measuring urinary excretion of electrolytes.

They will invite participants to attend follow-up at 3 months and which point we will record any changes to the medical history or medications and repeat the spot and 24-hour urine tests and blood tests with the exception of the blood taken for DNA extraction which will not need repeating.

At 1 year, 2 years, 5 years and 10 years post recruitment the researchers will perform a review of participants electronic health records in order to collect outcome data including MI, stroke, change in eGFR, need for renal dialysis and mortality. If this information is not available electronically they will contact the participants GP surgery. If, in exceptional cases, the information remains unavailable the researchers will request a face to face review with the participant. Completion of the 10-year review is the endpoint of participation in the study.

Intervention Type
Other

Primary outcome(s)
A combined primary outcome of:
1. Stroke measured by review of electronic health records at 1, 2, 5 and 10 years
2. MI measured by review of electronic health records at 1, 2, 5 and 10 years
3. Change in eGFR measured by review of electronic health records at 1, 2, 5 and 10 years
4. Need for renal dialysis measured by review of electronic health records at 1, 2, 5 and 10 years
5. Mortality measured by review of electronic health records at 1, 2, 5 and 10 years

Key secondary outcome(s))
1. Rehospitalisation within 2 years, measured by review of electronic health records at 1, 2, 5 and 10 years
2. Diagnosis of accelerated hypertension within 10 years, measured by review of electronic health records at 1, 2, 5 and 10 years

Completion date
01/10/2038

Eligibility

Key inclusion criteria
1. Adults aged 18 and over
2. Severe hypertension (systolic >180 mmHg and/or diastolic >110 mmHg)
3. Referred for same-day specialist review (for cases only)

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
All

Key exclusion criteria
1. Pre-existing renal replacement therapy
2. Acute stroke

Date of first enrolment
01/11/2020

Date of final enrolment
01/10/2028

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Queen's Medical Centre
Nottingham University Hospitals NHS Trust
Trauma and Orthopaedics
C Floor
West Block
Derby Road
Nottingham
United Kingdom
NG7 2UH

Study participating centre
Addenbrookes Hosital
Hills Road
Cambridge

United Kingdom
CB2 0QQ

Study participating centre
Queen Elizabeth Hospital Birmingham
University Hospitals Birmingham NHS Foundation Trust
Mindelsohn Way
Birmingham
United Kingdom
B15 2TH

Sponsor information

Organisation
University of Nottingham

ROR
https://ror.org/01ee9ar58

Funder(s)

Funder type
Government

Funder Name
NIHR Central Commissioning Facility (CCF); Grant Codes: NF-SI-0617-10096

Results and Publications

Individual participant data (IPD) sharing plan
The current data sharing plans for this study are unknown and will be available at a later date

IPD sharing plan summary
Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			28/06/2023	No	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes

Protocol file	version v1.0	17/01/2020	05/10/2020	No	No