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Minimally invasive surgery plus rt-PA for ICH evacuation

Submission date 29/04/2010	**Recruitment status** No longer recruiting	[_] Prospectively registered [_] Protocol [_] Statistical analysis plan [X] Results [_] Individual participant data
Registration date 29/04/2010	**Overall study status** Completed	
Last Edited 10/09/2019	**Condition category** Circulatory System	

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

ClinicalTrials.gov (NCT)
NCT00224770

Clinical Trials Information System (CTIS)
2007-006006-22

Protocol serial number
6469

Study information

Scientific Title
Minimally invasive surgery plus rt-PA for ICH evacuation

Acronym
MISTIE

Study objectives
The purpose of this trial is to determine the safety of using a combination of minimally invasive surgery and clot lysis with rt-PA to remove ICH.

Ethics approval required
Old ethics approval format

Ethics approval(s)
14/01/2009, ref: 08/H0906/158

Study design
Randomised interventional treatment trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Topic: Generic Health Relevance and Cross Cutting Themes, Stroke Research Network; Subtopic: Generic Health Relevance (all Subtopics); Disease: Surgery

Interventions
Stage 1 Dose Finding: 60 patients with ICH (45 surgical and 15 medical, 3:1 randomisation). Tiers 1 and 2: MISTIE + rt-PA versus medical.
Stage 2 Safety: 50 patients with ICH (25 surgical and 25 medical, 1:1 randomisation)

The neurosurgeon will review the stability CT scan to determine the burr hole location and trajectory to be used during the operative procedure to place the catheter. The Surgical Center personnel will review whether the proposed burr hole location and trajectory is appropriate or that a different location/trajectory is recommended. The catheter placement will be performed in either the operating room or the ICU. Careful hematoma aspiration is performed free hand using a 10 cc syringe.

Follow up length: 6 months
Study entry: single randomisation only

Intervention Type
Other

Phase
Phase II/III

Primary outcome(s)
Mortality, 30 days and procedure related.

Key secondary outcome(s))
1. Cerebritis, meningitis
2. Clot size reduction, post-operative and by day 4 - 5
3. Glasgow Outcome Scale (GOS), extended GOS (eGOS), Rankin, Stroke Impact Scale (SIS), measured at 30, 90, 180, 270, 365 days
4. Symptomatic rebleeding

Completion date
01/12/2010

Eligibility

Key inclusion criteria
1. Aged 18 - 80 years, either sex
2. Glasgow Coma Scale (GCS) less than 14 or a National Institutes of Health Stroke Scale (NIHSS) (including the use of distal hand measures) greater than 6
3. Spontaneous supratentorial ICH greater than 20 cc
4. Symptoms less than 12 hours prior to diagnostic CT scan (an unknown time of symptom onset is exclusionary)
5. Intention to initiate surgery within 48 hours after diagnostic CT
6. First dose can be given within 54 hours of diagnostic CT
7. Six-hour clot size equal to the most previous clot size + 5 cc (as determined by additional CT scan at least 6 hours after the initial stability scan (A*B*C)/2 method)
8. Systolic blood pressure (SBP) less than 200 mmHg sustained for 6 hours recorded closest to the time of randomisation
9. Historical Rankin score of 0 or 1
10. Negative pregnancy test

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
All

Total final enrolment
141

Key exclusion criteria

1. Infratentorial hemorrhage including brainstem (any involvement of the midbrain or lower brainstem as demonstrated by radiograph or complete third nerve palsy)
2. Patients with platelet count less than 100,000, international normalised ratio (INR) greater than 1.7, or an elevated prothrombin time (PT) or activated partial thromboplastin time (APTT) (reversal of coumadin is permitted but the patient must not require coumadin during the acute hospitalisation). Irreversible coagulopathy either due to medical condition or prior to randomiation (patient must have a sustained INR less than 1.7 using short- and long-acting procoagulants [Novoseven, FFP, and/or vitamin K]).
3. Clotting disorders
4. Any concurrent serious illness that would interfere with the safety assessments including hepatic, renal, gastroenteroligic, respiratory, cardiovascular, endocrinologic, immunologic, and haematologic disease
5. Patients with a mechanical valve
6. Patients with unstable mass or evolving intracranial compartment syndrome
7. Ruptured aneurysm, arteriovenous malformation (AVM), vascular anomaly
8. Greater than 80 years (higher incidence of amyloid)
9. Under 18 years of age (high incidence of occult vascular malformation)
10. Pregnant (positive pregnancy test) or lactating females (likelihood of altered coagulation function associated with the high oestrogen/progesterone state)
11. Irreversibly impaired brainstem function (bilateral fixed, dilated pupils and extensor motor posturing), GCS less than or equal to 4
12. Historical Rankin score greater than or equal to 2
13. Intraventricular haemorrhage requiring external ventricular drainage
14. Internal bleeding, involving retroperitoneal sites, or the gastrointestinal, genitourinary, or respiratory tracts
15. Superficial or surface bleeding, observed mainly at vascular puncture and access sites (e.g., venous cutdowns, arterial punctures) or site of recent surgical intervention
16. Known risk for embolisation, including history of left heart thrombus, mitral stenosis with atrial fibrillation, acute pericarditis, and subacute bacterial endocarditis
17. In the investigator's opinion, the patient is unstable and would benefit from a specific intervention rather than supportive care plus or minus endoscopic or MIS+rtPA
18. Prior enrolment in the study
19. Any other condition that the investigator believes would pose a significant hazard to the subject if the investigational therapy were initiated
20. Participation in another simultaneous trial of ICH treatment

Date of first enrolment
01/04/2010

Date of final enrolment
01/12/2010

Locations

Countries of recruitment
United Kingdom

England

Germany

Study participating centre
Neurosurgical Trials Unit
Newcastle upon Tyne
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Sponsor information

Organisation
Johns Hopkins University (USA)

ROR
https://ror.org/00za53h95

Funder(s)

Funder type
Government

Funder Name
National Institute for Health Research (NIHR) (UK)

Alternative Name(s)
National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

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	01/03/2013	10/09/2019	Yes	No
Basic results			10/09/2019	No	No
HRA research summary			28/06/2023	No	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes