

# ARTSS-2: A pilot, phase IIb, randomised, multicentre, safety and activity trial of Argatroban in combination with TPA (Alteplase) Stroke Study

<b>Submission date</b> 18/01/2013	<b>Recruitment status</b> No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 23/01/2013	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 20/01/2020	<b>Condition category</b> Circulatory System	<input type="checkbox"/> Individual participant data

**Plain English summary of protocol**  
Not provided at time of registration

## Contact information

**Type(s)**  
Scientific

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## Additional identifiers

**Protocol serial number**  
13646

# Study information

## Scientific Title

ARTSS-2: A pilot, phase IIb, randomised, multi-center trial of Argatroban in combination with recombinant tissue plasminogen activator for acute stroke

## Acronym

ARTSS-2

## Study objectives

A pilot, phase IIb, randomised, multicentre trial of Argatroban in combination with recombinant tissue plasminogen activator for acute stroke.

Recombinant tissue plasminogen activator (rtPA), the only proven treatment for acute ischemic stroke, fails to reperfuse the brain in most patients with large thrombi. In a Phase IIa low dose safety study (n=65), conducted by University of Texas Houston, delivering Argatroban with rtPA indicated that both drugs appear safe when delivered concomitantly and recanalisation rates were greater than with historical controls.

The purpose of the trial is to estimate the overall treatment benefit (improvement in disability) among stroke patients treated with rtPA (Alteplase) who are randomised to receive either lowdose Argatroban, highdose Argatroban or neither.

This study will provide evidence based hypotheses and data needed to design a larger definitive trial. The study will be conducted in six hospitals across the UK and will recruit males and females over 18 years of age with acute ischemic stroke.

## Ethics approval required

Old ethics approval format

## Ethics approval(s)

NRES Committee North West Greater Manchester South, 24/07/2012, ref:12/NW/0425

## Study design

Pilot phase IIb randomised multicentre trial

## Primary study design

Interventional

## Study type(s)

Treatment

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

Stroke

## Interventions

Three treatment arms (n=35 each) will be enrolled:

1. Low-dose Argatroban\* (1.0µg/kg/min continuous infusion of Argatroban, preceded by a 100 µg/kg bolus administered over 3-5 minutes Infusion will be titrated to achieve an aPTT of 1.75 times baseline - not to exceed 10 µg/kg/min) + usual care IV-rt-PA;

2. High-dose Argatroban\* 3.0 µg/kg/min continuous infusion of Argatroban, preceded by a 100 µg/kg bolus administered over 3-5 minutes Infusion will be titrated to achieve an aPTT of 2.25 times baseline - not to exceed 10 µg/kg/min) + usual care IV-rt-PA;
  3. Intravenous-rt-PA alone (usual care).
- \*Argatroban infusions will continue for a maximum of 48 hours.

During the course of the treatment, patients will be evaluated via Computed Tomography (CT) angiogram, CT scans, vital signs, laboratory measurements, and neurological and functional outcomes. Patients will also be evaluated at 24 hours following the onset of the stroke, Day 7 or discharge (whichever comes first) and at day 90.

Sponsor's EEA representative:

The Newcastle upon Tyne Hospitals NHS Foundation Trust  
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### **Intervention Type**

Drug

### **Phase**

Phase II

### **Drug/device/biological/vaccine name(s)**

Argatroban

### **Primary outcome(s)**

Excellent functional outcome as measured by the percentage of patients with a 0 or 1 on the modified Rankin Scale (mRS) at day 90 as assessed by study personnel blinded to treatment

### **Key secondary outcome(s)**

1. Safety as measured by the incidence of:
  - 1.1. Symptomatic intracranial haemorrhage (sICH)
  - 1.2. Parenchymal Haemorrhage 2 (PH-2)
  - 1.3. Major systemic haemorrhage.
2. Rates and completeness of arterial recanalisation assessed at baseline and 2-3 hours by CT-Angiogram (CTA)
3. Neurological deficits improvement from baseline to 2 hours, 24 hours, end of Argatroban infusion, Day 7/discharge and day 90 as measured by NIHSS
4. Quality of Life obtained by standard gamble, time-trade-off method and visual analogue scale (VAS)
5. Cost and cost-effectiveness analysis
  - 5.1 Medical costs associated with each treatment
  - 5.2 Incremental cost-effectiveness ratio (change in cost divided by quality of life gained)

### **Completion date**

31/07/2014

# Eligibility

## Key inclusion criteria

1. Disabling ischemic stroke symptoms with onset < 3 hours treated with IV rtPA (alteplase) by local standards\*.  
\* or <= 4.5 hours according to local standard of care
2. Age >= 18
3. National Institutes of Health Stroke Scale (NIHSS) >= 10\* or any NIHSS with an intracranial clot should be demonstrated on neurovascular imaging (TCD or CTA) in any one of the following areas: distal ICA, MCA (M1 or M2), PCA (P1 or P2), distal vertebral or basilar artery
  - 3.1. TCD criteria: TIBI 0, 1, 2 or 3
  - 3.2. CT Angiogram: TIMI 0 or 1\* NIHSS = 10, demonstration of clot on neuroimaging is not necessary (i.e., enrollment can proceed with noncontrast head CT alone), but if performed, a clot must be demonstrated
4. For those patients who will undergo repeat CT Angiogram at 23 hours, estimated glomerular filtration rate (eGFR) must be >= 60 mL/min/1.73m<sup>2</sup>
5. Females of childbearing potential must have a negative serum pregnancy test prior to the administration of trial medication
6. Signed (written) informed consent by the patient or the patients legal representative and/or guardian

## Participant type(s)

Patient

## Healthy volunteers allowed

No

## Age group

Adult

## Lower age limit

18 years

## Sex

All

## Key exclusion criteria

1. Patients whom the treating physician is planning (or could plan) to treat with intraarterial thrombolysis or other endovascular procedures (i.e., mechanical clot retrieval) aimed at recanalisation
2. Evidence of intracranial haemorrhage (ICH) on baseline CT scan or diagnosis of a nonvascular cause of neurologic deficit
3. NIHSS Level of Consciousness score (1a) >= 2
4. Preexisting disability with mRS >= 2
5. CT scan findings of hypoattenuation of the xray signal (hypodensity) involving >= 1/3 of the MCA territory
6. Any evidence of clinically significant bleeding, or known coagulopathy
7. INR >1.5
8. Patients with an elevated activated partial thromboplastin time (aPTT) greater than the upper limit of normal

9. Patients currently, or within the previous 24 hours, on an oral direct thrombin inhibitor
10. Heparin flush required for an IV line. Line flushes with saline only.
11. Any history of intracranial haemorrhage, known arteriovenous malformation or unsecured cerebral aneurysms
12. Significant bleeding episode within the 3 weeks before study enrollment
13. Major surgery or serious trauma in last 2 weeks
14. Patients who have had an arterial puncture at a noncompressible site, biopsy of parenchymal organ, or lumbar puncture within the last 2 weeks
15. Previous stroke, myocardial infarction (MI), post myocardial infarction pericarditis, intracranial surgery, or significant head trauma within 3 months
16. Uncontrolled hypertension (SBP > 185 mmHg or DBP >110 mmHg) that does not respond to intravenous antihypertensive agents
17. Surgical intervention (any reason) anticipated within the next 48 hours
18. Known history of clinically significant hepatic dysfunction or liver disease including a current history of alcohol abuse
19. Abnormal blood glucose <50 mg/dL (2.7 mmol/L)
20. History of primary or metastatic brain tumor
21. Current platelet count < 100,000/mm<sup>3</sup>
22. Life expectancy < 3 months
23. Patients who, in the judgment of the investigator, needs to be on concomitant (i.e., during the Argatroban infusion) anticoagulants other than Argatroban, including any form of heparin, unfractionated heparin (UFH), low-molecular-weight heparin (LMWH), defibrinogenating agent, dextran, other direct thrombin inhibitors or thrombolytic agents, GPIIb/IIIa inhibitor or warfarin. [\*Caveat: However, if in the judgment of the investigator a patient needs to be anticoagulated, but this can be deferred for 48 hours, then they could be included.]
24. Currently participating or has participated in any investigational drug or device study within 30 days before the first dose of study medication
25. Known hypersensitivity to Argatroban or its agents
26. Additional exclusion criteria if patient presents between 34.5 hours:
  - 26.1. Age >80
  - 26.2. Currently taking oral anticoagulants (regardless of INR)
  - 26.3. A history of stroke and diabetes.
  - 26.4. NIHSS > 25

**Date of first enrolment**

01/03/2013

**Date of final enrolment**

31/07/2014

## **Locations**

**Countries of recruitment**

United Kingdom

England

**Study participating centre**

**Newcastle Clinical Trials Unit**  
Newcastle Upon Tyne  
United Kingdom  
NE2 4HH

## Sponsor information

### Organisation

The University of Texas Health Science Center at Houston (USA)

### ROR

<https://ror.org/03gds6c39>

## Funder(s)

### Funder type

Government

### Funder Name

National Institutes of Health (USA)

### Alternative Name(s)

US National Institutes of Health, Institutos Nacionales de la Salud, NIH, USNIH

### Funding Body Type

Government organisation

### Funding Body Subtype

National government

### Location

United States of America

## Results and Publications

### Individual participant data (IPD) sharing plan

### IPD sharing plan summary

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
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<a href="#">Results article</a>	results	01/09/2015		Yes	No
<a href="#">HRA research summary</a>			28/06/2023	No	No