

Eligibility for consideration of IV treatment with alteplase

Age over 18 (no upper age limit: licence is <80 years but consider over 80 years) ?*older teens*

Clinical diagnosis of stroke (ROSIER scale see page 4) causing a measurable neurological deficit

Time of symptom onset is known (*Patients who wake up with symptoms are not eligible for thrombolysis*)

Sufficient time in 4.5 hour therapeutic window to assess and treat

If “Yes” to ALL proceed to Acute Stroke Thrombolysis Pathway

Assess and briefly examine patient, including an estimate of the patient’s weight

- focused history and examination, BM, GCS (>8), **NIHSS score (<25)**
- If patient not rapidly improving, request immediate CT brain

Contact clinician authorised to deliver thrombolysis (senior ED physician / Stroke team)

Whilst waiting for CT scan (but do not delay CT scan to do any of these):

- Take bloods (U+E, glucose, FBC, clotting and total cholesterol) and perform an ECG
- IV access x 1
- Check rt-PA exclusions (see next page) with patient or family member
- If blood pressure consistently >185 SBP or >110 DBP, **consider intravenous nitrate or Labetolol** (see page 5, Management of Blood Pressure)
- If blood pressure remains above 185/110, the patient is not eligible for thrombolysis
- Site manager to clear an appropriate bed on Farley Stroke Unit urgently

Post CT Scan

- Contact on call Regional Stroke Physician for advice (through switchboard) if uncertain whether to treat (he/she may want to review the scan even if the report is available so make sure the radiographer sends the images on to the PACS system for viewing.
- If no radiological exclusion criteria briefly reassess patient to exclude rapidly improving signs
- Obtain patient verbal assent to rt-PA treatment
- If patient is unable to assent, discuss with family but act in patient’s best interest
- Do not await blood results unless current anticoagulation - stop infusion if subsequent results are outside tolerated limits
- Reconstitute rt-PA and start administration
- Dose of rt-PA: 0.9 mg/kg up to a maximum of 90 mg, whichever is the lesser. Give 10% as a bolus over 1-2 minutes and the remaining 90% as a 1-hour infusion
- Withhold aspirin, heparin and warfarin for 24 hours

Transfer patient to appropriate bed on Farley Stroke Unit when available

Check blood results and review eligibility to continue thrombolysis

Monitor BP at 15 minute intervals during infusion, 1 hour intervals for 6 hrs and then 4-hourly up to 24 hrs

STOP infusion if:

- Anaphylaxis (incidence 1.5% in 1 study), marked hypotension
- Neurological deterioration –
 - conscious level (2 points GCS eye/motor score) ;
 - NIHSS \geq 4 points
- BP >185/110 mm Hg if sustained or associated with neurological deterioration
- Major systemic bleeding

Standard Post Thrombolysis Care for Stroke

- Avoid urinary catheterisation during thrombolysis and for 30 minutes after completion
- Avoid venous or arterial puncture during thrombolysis
- Avoid nasogastric tube placement for first 24 hours
- Consider CT scan @ 24/48 hours
- Start anti-platelet treatment (see local protocol for duration and dose) after 24 hours

CLINICAL EXCLUSIONS FROM THROMBOLYSIS

From the history:

Absolute contraindications:

- Active internal bleeding
- Major surgery or serious trauma within last 14 days
- Clinical diagnosis of subarachnoid haemorrhage even if CT normal
- Treatment dose low molecular weight Heparin within 24 hours

Relative contraindications (please discuss with a senior clinician):

- Recent CVA, head injury or cranial surgery (within 3 months)
- Seizure at stroke onset
- Any history of intracranial haemorrhage, brain tumour, intracranial AVM or aneurysm
- Recent (< 48 hours) lumbar puncture or (<1 week) arterial/venous puncture at non-compressible site
- Pregnancy – see notes below

N.B. Current warfarin treatment is not an exclusion if the INR is less than or equal to 1.7

On initial assessment:

- Coma (GCS <8)
- Severe stroke (NIHSS >25)
- NIHSS < 4 except isolated disabling symptoms (e.g. severe dysphasia, homonymous hemianopia)
- Rapidly improving symptoms or signs
- Capillary blood glucose <2.8 or >22.0 (if hypoglycaemic treat with 20% glucose and reassess; (See hyperglycaemic guidelines on ICID) if hyperglycaemic continue with protocol but await result of lab glucose before treating with rtPA)

On Lab results (if they are available):

- Platelets < 100
- INR > 1.7
- APTR > 1.2
- Plasma glucose <2.8 or >22.0 mmol/l

On CT brain:

- Intracranial haemorrhage
- Other pathologies

Notes

Thrombolysis in pregnancy:

It is very difficult to give clear guidance on TL in pregnancy as this will be both a very rare clinical situation and one with very little evidence or RCT data to guide decision making. Each case will need to be assessed on an individual risk benefit basis by an expert in the delivery of thrombolysis in stroke. This should not be assessed on a remote expert basis. The sparse evidence that does exist suggests that TL in acute ischemic stroke (AIS) in pregnancy probably carries a higher than usual risk of symptomatic intra cerebral haemorrhage in the mother in the order of 10%.

TL given for a number of conditions including pulmonary Embolism and AIS carries a risk of significant bleeding such as major uterine hematoma in the order of 8%. Foetal safety remains unproven.

Anecdotal cases of successful resolution of maternal stroke post TL have been recorded in both the first trimester and the immediate post partum period.

National Institutes of Health Stroke Scale (NIHSS)

Item	Title	Responses and score	on arrival
			date and time:
1A	level of consciousness	0 alert 1 drowsy 2 obtunded 3 coma/unresponsive	
1B	Orientation questions (2)	0 answers both correctly 1 answers one correctly 2 answers neither correctly	
1C	Response to commands (2)	0 performs both tasks correctly 1 performs one task correctly 2 performs neither task correctly	
2	Gaze	0 normal horizontal movements 1 partial gaze palsy 2 complete gaze palsy	
3	Visual fields	0 no visual field defect 1 partial hemianopia 2 complete hemianopia 3 bilateral hemianopia	
4	Facial movement	0 normal 1 minor facial weakness 2 partial facial weakness 3 complete unilateral palsy	
5	Motor function (arm) a. left b. right	0 no drift 1 drift before 5 seconds 2 falls before 10 seconds 3 no effort against gravity 4 no movement	left right
6	Motor function (leg) a. left b. right	0 no drift 1 drift before 5 seconds 2 falls before 10 seconds 3 no effort against gravity 4 no movement	left right
7	limb ataxia	0 no ataxia 1 ataxia in 1 limb 2 ataxia in 2 limbs	
8	Sensory	0 no sensory loss 1 mild sensory loss 2 severe sensory loss	
9	Language	0 normal 1 mild aphasia 2 severe aphasia 3 mute or global aphasia	
10	Articulation	0 normal 1 mild dysarthria 2 severe dysarthria	
11	Extinction or inattention	0 absent 1 mild (loss of 1 sensory modality) 2 severe (loss of 2 sensory modalities)	
			Total score:

Rt-PA DOSE READY RECKONER

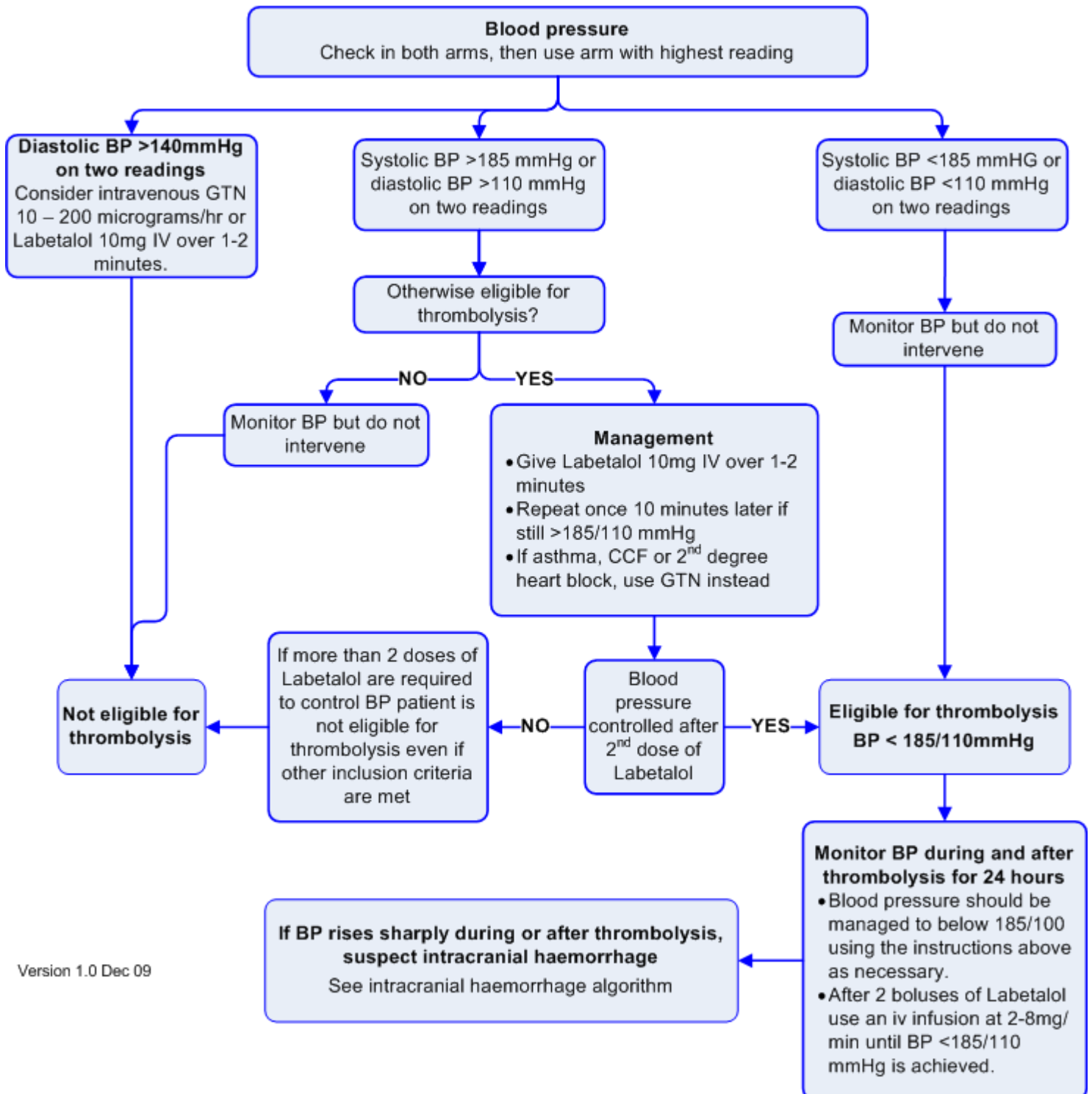
- Unless the patient or companion knows their recent weight, estimate it to the nearest 5 kg
- The total dose of rt-PA is 0.9 mg/kg or 90 mg, whichever is lower
- When the decision to treat has been made **do not delay**
- Make up one or two vials of rt-PA using the 50 ml diluent in each drug pack, making a solution of 1 mg/ml rt-PA
- Draw up and give 10% as a bolus over 1-2 minutes using a 10 ml syringe
- Draw up the remaining 90% (the 'infusion dose') into one or two 50 ml syringes and set up the syringe pump with the corresponding infusion rate in mls/hr. Doses above 50 mls will need a change of syringe at some point within the hour's infusion
- **Do not** give the cardiac dose
- **Do not** give more than 90 mg.

		1	2	3	4	5
		Estimate of patients weight (kg)	Equivalent Imperial weight	Total dose (mg at 1 mg/ml)	Bolus dose (mls) given over 1-2 minutes	Infusion dose (mls) = infusion rate in mls/hr
One vial		45	7 st 1 lb	40	4.0	36.0
		50	7 st 12 lb	45	4.5	40.5
		55	8 st 9 lb	49	4.9	44.1
Two vials		60	9 st 6 lb	54	5.4	48.6
		65	10 st 3 lb	58	5.8	52.2
		70	11 st 0 lb	63	6.3	56.7
		75	11 st 11 lb	67	6.7	60.3
		80	12 st 8 lb	72	7.2	64.8
		85	13 st 5 lb	76	7.6	68.4
		90	14 st 2 lb	81	8.1	72.9
		95	14 st 13 lb	85	8.5	76.5
		≥100	15 st 10 lb	90	9.0	81.0

ROSIER Scale – for recognition of stroke

	Syncope	Yes (-1)	<input type="checkbox"/>	No (0)	<input type="checkbox"/>
	Has there been seizure activity?	Yes (-1)	<input type="checkbox"/>	No (0)	<input type="checkbox"/>
i)	asymmetric facial weakness?	Yes (+1)	<input type="checkbox"/>	No (0)	<input type="checkbox"/>
ii)	Asymmetric arm weakness?	Yes (+1)	<input type="checkbox"/>	No (0)	<input type="checkbox"/>
iii)	Asymmetric leg weakness?	Yes (+1)	<input type="checkbox"/>	No (0)	<input type="checkbox"/>
iv)	Speech disturbance?	Yes (+1)	<input type="checkbox"/>	No (0)	<input type="checkbox"/>
v)	Visual field defect?]	Yes (+1)	<input type="checkbox"/>	No (0)	<input type="checkbox"/>
Total score (between - 2 and + 5)					
A diagnosis of stroke is unlikely if score ≤ 0					

Management of blood pressure in potential thrombolysis patients with acute ischaemic stroke



Management of intracranial haemorrhage following thrombolysis in acute ischaemic stroke

