NHS Highland Stroke MCN

Treatment of Hyper-Acute Stroke Presenting Within 4·5 Hours of Onset of Symptoms

Local Area Specialists:
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Consider Stroke at time of FIRST referral, (24/7)
Given the time of onset of symptoms, and the location of the patient, could the patient have a head scan performed within 4·5 hours?
There should be no delay. **Best outcomes are achieved when thrombolysis is administered within 90 minutes.** Collect all possible data on exclusion criteria (see page 2) from referring source.
SIGN 108 endorses the evidence base stating that alteplase is safe up to 4·5 hours, however, please note that >3hours it is currently unlicensed.
DO NOT WAIT until YOU see the patient or until they have had a scan

First Name
Family Name
CHI
Address:
(Patient label if available)

ROSIER Score (From history or examination)

Loss of consciousness	Yes	-1	No	0
Seizure Activity	Yes	-1	No	0
Speech disturbance	Yes	+1	No	0
Unilateral face weakness	Yes	+1	No	0
Unilateral arm weakness	Yes	+1	No	0
Unilateral leg weakness	Yes	+1	No	0
Visual field deficit	Yes	+1	No	0

TOTAL

Date / / 20 Time :

Time of symptom onset :

Maximum time for commencing thrombolysis (Onset +4·5 hours) :

→ SECONDS COUNT → SECONDS COUNT → SECONDS COUNT

Total Score <1:
Stroke/TIA unlikely, consider other diagnosis

Total Score >/= 1:
Stroke/TIA likely

Resolving/Resolved Symptoms/Signs
Assess need for urgent investigation as per TIA/Stroke protocol

Persisting Symptoms/Signs: **CONSIDER THROMBOLYSIS IF <4·5 HOURS**

Complete the Exclusion Criteria for Thrombolysis on Pages 2-3……
If NO absolute exclusion criteria, request immediate brain scan, inform radiologist of time-frame…
Inform receiving consultant……
Take URGENT bloods for glucose (BM), FBC plus clotting / admission bloods as indicated……
Ensure thrombolysis equipment (Alteplase 2 x 50mg vials, infusion pump, syringes and lines) available……
(Raigmore: Drugs kept in ED resus. Room & MSCU)
Clerk the patient using the brief form on page 4……
Arrange appropriate high-dependency bed for transfer post-scan……

HEAD SCAN RESULT Time : Radiologist name ……
Report:

High density lesion consistent with intracranial haemorrhage…… YES/NO
Hypo-density in >1/3 M.C.A territory or equivalent…… YES/NO
Effacement of C.S.F spaces in >1/3 M.C.A territory or equivalent …… YES/NO
Scan Contraindications to thrombolysis present? Yes No Signature

No contra-indications clinically or radiologically (see page 2 again) & still within 4·5 hours……
Verbal consent for thrombolysis from patient……
(if not possible, may use adults with incapacity act, but discuss with receiving consultant)
Calculate IV bolus and infusion doses of Alteplase from chart on page 5……
Discuss plan to proceed with thrombolysis with receiving consultant (or Local Area Specialist) ……

IV Alteplase Prescription:

	Signed	Prepared by	Given by	Time started
Alteplase bolus dose mg		/		
Alteplase infusion mg over 1 hour				
Prime line (usually 2ml) (✓) First syringe (volume ml)		/		
Second syringe, if req (volume ml)		/		

Bolus should be administered by hand over 2 minutes. Infusion rate in ml/hr is the same as the dose in mg/hr

Transfer to high-dependency area and monitor for close neuro. and general observation……

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Where cut-offs are given, clinical judgement should be exercised if a patient falls close to the cut-off. *Please ensure that this list is considered at the time of first assessment, even if this assessment is by phone.*

ABSOLUTE CONTRA-INDICATIONS:	Present	Absent
•Symptoms beginning more than 4·5 hours prior to infusion start or when time of symptom onset is unknown	☐	☐
•Known history of, or suspected intracranial haemorrhage	☐	☐
•Symptoms suggestive of subarachnoid haemorrhage, even if CT-scan is normal	☐	☐
•Evidence of intracranial haemorrhage (ICH) on the CT-scan	☐	☐
•Manifest or recent severe or dangerous bleeding	☐	☐
•Known haemorrhagic diathesis	☐	☐
RELATIVE CONTRA-INDICATIONS:		
•Systolic blood pressure> 185 or diastolic > 110 mm Hg. Using IV medication to reduce BP to these targets is out-with the product licence	☐	☐
•Patient receiving oral anticoagulant, e.g. warfarin sodium (unless INR <1.4)	☐	☐
•Patient <18 or >80 years old	☐	☐
•Administration of IV heparin within the previous 48 hours AND an APTT exceeding the upper limit of normal	☐	☐
•Receiving treatment-dose LMWH	☐	☐
•Any history of central nervous system damage (i.e. neoplasm, aneurysm, intracranial or spinal surgery)	☐	☐
▪Recent (less than 10 days) traumatic external heart massage, obstetric delivery or puncture of a non-compressible vessel	☐	☐
▪Bacterial endocarditis or pericarditis	☐	☐
•Acute pancreatitis	☐	☐
•Documented ulcerative gastrointestinal disease during the last 3 months	☐	☐
•Neoplasm with increased bleeding risk	☐	☐
•Severe liver disease, including hepatic failure, cirrhosis, portal hypertension (oesophageal varices) and active hepatitis	☐	☐
•Major surgery or significant trauma in past 3 months	☐	☐
•Minor neurological deficit (NIHSS ≤ 4 *see page 3*) or symptoms rapidly improving before start of infusion	☐	☐
•Severe stroke as assessed clinically (e.g. NIHSS>25 *see page 3*) and/or by appropriate imaging techniques	☐	☐
•Pre-presentation Rankin Score ≥ 4, (*see below*) indicating significant disability, especially if due to previous stroke	☐	☐
•Seizure at onset of stroke	☐	☐
•Patients with any history of prior stroke (especially prior 3/12) and concomitant diabetes		
•Platelet count of below 100,000/mm^3	☐	☐
•Uncorrected blood glucose < 2.8 or > 22 mmol/L	☐	☐

For further advice regarding contra-indications contact your Local Area Specialist.
Contact details on page 1.

Modified Rankin Score (note: **The Score must be calculated for disability prior to the new stroke event .** Rankin is a stroke outcome scale, and should be interpreted with caution for causes of disability other than previous stroke)

Score	**Description**
0	No symptoms at all
1	No significant disability despite symptoms; able to carry out all usual duties and activities
2	Slight disability; unable to carry out all previous activities, but able to look after own affairs without assistance
3	Moderate disability; requiring some help, but able to walk without assistance
4	Moderately severe disability; unable to walk without assistance and unable to attend to own bodily needs without assistance
5	Severe disability; bedridden, incontinent and requiring constant nursing care and attention
6	Dead

TOTAL SCORE ☐

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National Institutes of Health Stroke Scale (NIHSS)		
1a Level of Consciousness (LOC)	**0** **1** **2** **3**	Alert- keenly responsive Drowsy- rousable by minor stimulation to obey, answer, or respond Stuporous- requires repeated stimulation to attend, or is obtunded and requires strong or painful stimulation to make movements (not stereotyped) Comatose- responds only with reflex motor or autonomic effects or totally unresponsive, flaccid
1b LOC Questions	**0** **1** **2**	Answers both correctly Answers one correctly Both incorrect Patient is asked to state the month & his / her age
1c LOC Commands	**0** **1** **2**	Obeys both correctly Obeys one correctly Both incorrect Patient is asked to open & close eyes, grip & release normal hand
2. Best Gaze	**0** **1** **2**	Normal Partial gaze palsy- gaze is abnormal in one or both eyes, no forced deviation/total gaze paresis Forced deviation- or total gaze paresis not overcome by oculocephalic maneouvre
3.Visual Fields	**0** **1** **2** **3**	No visual loss(or in a coma) partial hemianopia complete hemianopia bilateral hemianopia-including cortical blindness
4. Facial Palsy	**0** **1** **2** **3**	Normal Minor- flattened nasolabial fold, asymmetry on smiling Partial- total or near total paralysis of lower face Complete- absent facial movement in upper and lower face and lower face on one or both sides
5. Best Motor RIGHT ARM	**0** **1** **2** **3** **4**	No drift- holds limb at 90 degrees for full 10 seconds Drift- drifts down but does not hit bed Some effort against gravity No effort against gravity No movement
6. Best Motor LEFT ARM	**0** **1** **2** **3** **4**	No drift- holds limb at 90 degrees for full 10 seconds Drift- drifts down but does not hit bed Some effort against gravity No effort against gravity No movement
7. Best Motor RIGHT LEG	**0** **1** **2** **3** **4**	No drift- holds limb at 45 degrees for full 5 seconds Drift- drifts down but does not hit bed Some effort against gravity No effort against gravity No movement
8. Best Motor LEFT LEG	**0** **1** **2** **3** **4**	No drift- holds limb at 45 degrees for full 5 seconds Drift- drifts down but does not hit bed Some effort against gravity No effort against gravity No movement
9. Limb Ataxia	**0** **1** **2**	Absent(or in coma) Present in 1 limb Present in 2 or more limbs
10. Sensory	**0** **1** **2**	Normal Partial loss- patient feels pinprick is less sharp or is dull on affected side Dense loss(or in coma)- patient is unaware of being touched on face, arm, leg
11. Best Language	**0** **1** **2** **3**	No dysphasia Mild- moderate dysphasia obvious loss of fluency or comprehension, without significant limitation on ideas expressed or form of expression. Makes conversation about provided material difficult or impossible, e.g. examiner can identify picture or naming card from patient's response. Severe dysphasia- all communication is through fragmentary expression; great need for inference, questioning, and guessing by the listener who carries burden of communication. Examiner cannot identify materials provided from patient response Mute- no usable speech or auditory comprehension, or in coma.
12. Dysarthria	**0** **1** **2**	Normal articulation Mild- moderate dysarthria- patient slurs some words can be understood with some difficulty. Unintelligible or worse- speech is so slurred as to be unintelligible (absence of or out of proportion to dyshasia) or is mute / anarthic, or in coma
13. Neglect	**0** **1** **2**	No neglect(or in a coma) Partial neglect- visual, tactile, auditory, spatial, or personal inattention or extinction to bilateral simultaneous stimulation in one of the sensory modalities Complete neglect- profound hemi-inattention or hemi-inattention to more than one modality. Does not recognise own hand or orients to only one side of space
Total Score:		

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Pre-thrombolysis BRIEF clerking (full clerking may be necessary once thrombolysis commenced or ruled out)

Name of Assessor: Time of Assessment:

History of Presenting Complaint:

Relevant Past History

Relevant Drug History (especially warfarin)

Allergies

Examination:
General

Blood Pressure:

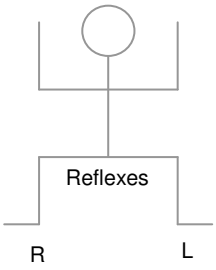
CNS

	LUL	RUL	LLL	RLL
Tone				
Power				
Sensation				

Cranial Nerves:

GCS:

E	/4
V	/5
M	/6
Total	**/15**



→ SECONDS COUNT → SECONDS COUNT → SECONDS COUNT → SECONDS COUNT → → → → → →

Notes:

Signed……..

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Body Weight/ Dose Chart for Alteplase 1mg/ml

Body Weight (Kg)	Approx. Body Weight (Imperial)	Total Alteplase dose (mg)	IV Bolus 10% of total dose (ml)	IV Infusion 90% of total dose (ml/hr)	No. of 50mg Alteplase vials required	Dose Selected (Tick)
40	6st 4	36	4	32	1	
42	6st8	38	4	34	1	
44	6st13	40	4	36	1	
46	7st3	41	4	37	1	
48	7st7	43	4	39	1	
50	7st12	45	5	40	1	
52	8st2	47	5	42	1	
54	8st7	49	5	44	1	
56	8st11	50	5	45	2	
58	9st1	52	5	47	2	
60	9st6	54	5	49	2	
62	9st10	56	6	50	2	
64	10st1	58	6	52	2	
66	10st5	59	6	53	2	
68	10st9	61	6	55	2	
70	11st	63	6	57	2	
72	11st4	65	6	59	2	
74	11st9	67	7	60	2	
76	11st13	68	7	61	2	
78	12st3	70	7	63	2	
80	12st8	72	7	65	2	
82	12st12	74	7	67	2	
84	13st3	76	8	68	2	
86	13st7	77	8	69	2	
88	13st12	79	8	71	2	
90	14st2	81	8	73	2	
92	14st6	83	8	75	2	
94	14st11	85	8	77	2	
96	15st1	86	9	77	2	
98	15st6	88	9	80	2	
100	15st10	90	9	81	2	
> 100 kg, use 90 mg maximum						

PATIENTS MUST BE CONTINUOSLY MONITORED PRIOR TO AND DURING DRUG ADMINISTRATION and closely monitored for at least 24 hrs following administration.

1. **Total dose: 0.9mg/kg, based on actual or estimated body weight. Maximum dose is 90mg.**
2. **Must be prescribed on front sheet of protocol, following discussion with responsible Consultant**
3. **Reconstitute each 50mg alteplase vial with 50ml of Water For Injection via the transfer spike to give a solution with concentration 1mg/ml.**
4. **Initial 10% of total dose given as an IV manual push over 2mins administered with an experienced doctor present.**
5. **Prime infusion line (usually 2ml). *This volume is in addition to the prescribed volume, as the volume left in the line after the infusion does not enter the patient.***
6. **Administer remaining 90% of total dose, commencing immediately after initial bolus, and delivered over 60 minutes. (Infusion rate in ml/hr is the same as the dose in mg/hour)**
7. **If infusion volume (dose) is >60ml, a second syringe is required.**

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STROKE THROMBOLYSIS NURSING CARE PLAN

DATE	NEEDS/ POTENTIAL PROBLEM	GOAL	CARE REQUIRED	DATE OF REVIEW	NURSES SIGNATURE
	…….. has had a stroke and has verbally consented for thrombolysis treatment	Drug administered according to protocol and prescription	-Cardiac monitoring to be commenced to monitor for early warning signs of cardiac complications -Continuous monitoring of Temperature, Pulse, Blood Pressure, Oxygen Saturation and Neuro obs require to be monitored before the administration of treatment, during and for 24 hrs after treatment. (Notify medics if systolic BP>180 mmHg or <120mmHg, or diastolic >105 or <70 for 2 readings 5-10 mins apart)		
	Potential risk of haemorrhage due to the treatment	Early detection and treatment of any adverse reactions and side effects	-Report any clinically significant changes in neuro or vital signs -Report any signs of bleeding immediately -Follow algorithm for Intracranial Haemorrhage if suspected -Bed rest for 24 hrs following the procedure -Avoid central venous access, arterial puncture and injections for the first 24 hrs -Avoid naso-gastric tube insertion for 24 hrs -Do NOT give drug prescriptions for anti-coagulants, anti-platelets and non steroidal anti-inflammatories for 24 hrs -Avoid the insertion of urinary catheters for 30 minutes prior to the procedure and for 24 hrs after		
	Promote cerebral perfusion and reduce intracranial pressure	To minimise complications / maintain levels of cerebral perfusion	-Bed rest for 24 hrs following the procedure, with the exception of toileting by bedside -Position with head up to an angle of 30 degrees -Maintain oxygen saturation level at >95%		
	May develop headache post treatment	To minimise post stroke pain	-Position to at 30 degree angle to promote cerebral perfusion -Give analgesia to relieve symptoms (no NSAID)		
	May have a problem with swallowing, maintaining fluid and nutrition intake	To recognise dysphagia and to maintain hydration levels	-Conduct swallow screening test within 24 hrs of admission -Refer to protocol for stroke dysphagia management -Refer to Speech and Language Therapist for further assessment if dysphagia recognised -Nil by mouth if dysphagia present -Monitor and maintain fluid input and output		

All stroke patients who have undergone thrombolysis should be notified to the Stroke Coordinator on 01463 704086 or radio-page via switchboard

Notes (Medical/Nursing)

Date & Time

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Date & Time

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