Inclusion and Exclusion Criteria for IV Thrombolytic Treatment of Ischemic Stroke

NORTH Dakota Be Legendary.
Health & Human Services

For consideration of eligibility within less than 4.5 hours of last known well, wake-up, or unknown time of onset:

Date_____Time_____

INCLUSION CRITERIA - Patient who should receive IV Thrombolytic

- ☐ Symptoms suggestive of ischemic stroke that are deemed to be disabling*, regardless of improvement (see Reference Table below for considered disabling symptoms)
- ☐ Able to initiate treatment within 4.5 hours of Time Last Known Well (document clock time)
- ☐ Age 18 years or older
- ☐ WAKE-UP or unknown time of onset Acute Ischemic Stroke (If MRI Available)-IV alteplase administered within 4.5 hour of stroke symptom recognition can be beneficial in patients with AIS who awake with stroke symptoms or have unknown time of onset>4.5 hour from last known well or at baseline state and who have **a DW-MRI lesion smaller than one-third of MCA territory and no visible signal change on FLAIR**. *(COR IIa; LOE B-R)*

IV Thrombolytic Medications

- ☐ IV Alteplase (0.9mg/kg, maximum dose 90mg over 60 minutes with initial 10% of dose given as bolus over 1 minute) is recommended for selected patients who can be treated within 3 and 4.5 hour of ischemic stroke symptom onset or patient last known well *(COR I; LOE B-R)*
- ☐ It may be reasonable to choose Tenecteplase single IV bolus of 0.25mg/kg, maximum 25mg over IV alteplase in patients without contraindications for IV fibrinolytics who are also eligible to undergo mechanical thrombectomy *(COR IIa; LOE B-R)*

ABSOLUTE EXCLUSION CRITERIA - If patient has any of these, do NOT initiate IV Thrombolytic

- ☐ CT scan demonstrating intracranial hemorrhage or subarachnoid hemorrhage
- ☐ CT exhibits extensive regions (> 1/3 MCA Territory on CT) of clear hypo attenuation
- ☐ Unable to maintain BP <185/110 despite aggressive antihypertensive treatment
- ☐ Ischemic stroke within last 3 months
- ☐ History of intracranial hemorrhage
- ☐ Severe head trauma within last 3 months
- ☐ Active internal bleeding (i.e., Aortic Dissection known or suspected)
- ☐ Arterial puncture at non-compressible site within last 7 days
- ☐ Infective endocarditis
- ☐ Gastrointestinal bleeding within last 21 days or structural GI malignancy
- ☐ Intracranial or spinal surgery within last 3 months

Laboratory:

- ☐ Blood glucose <50 mg/dL (however should treat if stroke symptoms persist after glucose normalized)

Results not required before treatment unless patient is on anticoagulant therapy or there is another reason to suspect an abnormality:

- ☐ INR >1.7
- ☐ Platelet count <100,000, PT >15 sec, aPTT >40 sec

Medications:

- ☐ **Full dose low molecular weight heparin (LMWH) within last 24 hours (patients on prophylactic dose of LMWH should NOT be excluded)
- ☐ Received direct oral anticoagulant (DOAC) within last 48 hours (assuming normal renal metabolizing function)
    - Commonly prescribed DOACs: apixaban (Eliquis), dabigatran (Pradaxa), rivaroxaban (Xarelto), edoxaban (Savaysa)

CONSIDERATION for EXCLUSION (RELATIVE) - Seek Neurology consultation from a Stroke Expert

- ☐ Stroke severity too mild (non-disabling)
- ☐ IV or IA thrombolysis/thrombectomy at an outside hospital prior to arrival
- ☐ Life expectancy < 1 year or severe co-morbid illness or comfort measure only (CMO) on admission
- ☐ Patient/family refusal
- ☐ Pregnancy
- ☐ Major surgery or major trauma within 14 days
- ☐ Seizure at onset and postictal impairment without evidence of stroke
- ☐ Myocardial infarction within last 3 months
- ☐ Acute pericarditis
- ☐ Lumbar puncture within 7 days
- ☐ Past gastrointestinal or genitourinary bleeding
- ☐ Any other condition or history of bleeding diathesis which would pose significant bleeding risk to patient. Conditions may include acute pericarditis, SBE (spontaneous bacterial endocarditis), hemostatic defects, diabetic hemorrhagic retinopathy, septic thrombophlebitis, occluded AV cannula, or patient is currently receiving oral anticoagulants (e.g., Warfarin or DOACS).
- ☐ Presence of known intracranial conditions that may increase risk of bleeding (arteriovenous malformation, aneurysms >10mm, intracranial neoplasm, amyloid angiopathy)
- ☐ Received either of the following anti-amyloid therapies for Alzheimer's disease: lacanemab (Leqembi) or donanemab (Kisunla)
- ☐ High likelihood of left heart thrombus (e.g., mitral stenosis with atrial fibrillation)
- ☐ Blood glucose > 400 mg/dL (however should treat with IV alteplase if stroke symptoms persist after glucose normalized)

*Considered disabling symptoms: should be considered for IV Thrombolytic treatment

Complete hemianopsia (• 2 on NIHSS question 3) or **severe aphasia** (• 2 on NIHSS question 9), or
Visual or sensory extinction (• 1 on NIHSS question 11) **or**
Any weakness limiting sustained effort against gravity (• 2 on NIHSS question 6 or 7) or
Any deficits that lead to a total NIHSS score >5 or
Any remaining symptoms considered potentially disabling in the view of the patient and the treating practitioner. i.e., Do presenting symptoms interfere with lifestyle (work, hobbies, entertainment?) Clinical judgment is required**

**Note: This is an example based on current best practices for hospitals to implement and operationalize. Specific criteria may vary by hospital.

REFERENCE:

Powers WJ, Rabinstein AA, Ackerson T, et al. Guidelines for the early management of patients with acute ischemic stroke: 2019 update to the 2018 guidelines for the early management of acute ischemic stroke: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke.* 2019;50(12):e344-e418. doi:10.1161/STR.0000000000000211

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Rech MA, Carpenter CR, Aggarwal NT, Hwang U. Anti-amyloid therapies for Alzheimer's disease and amyloid-related imaging abnormalities: Implications for the emergency medicine clinician. *Ann Emerg Med.* Published online 2024. doi:10.1016/j.annemergmed.2024.12.002