Nebraska STROKE Advisory Council

American Heart Association. Mission:Lifeline®

Patient arrives or EMS notifies of patient with signs and symptoms of stroke (Stroke Alert)

Provider assessment
Bedside glucose
Goal <10 minutes

Non-contrast Head CT
Goal <20 minutes

NIHSS/RACE, 2 Peripheral IVs, Labs, Vitals, neuro assessment
Non-contrast Head CT read (45 minutes)

Non- contrast CT results Hemorrhage?

Yes

- SBP goal 140-160
- Labetalol 10mg IV x1, may repeat x1
- Nicardipine infusion if SBP remains >160

- Document ICH Severity Score
- If applicable: administer anticoagulant reversal agent*/blood products

*see recommended reversal agents

Higher level of care needed?

NO: Monitor patient per hospital protocol

YES: Transfer

No

IV Alteplase candidate?

No

Yes

Order IV Alteplase
Prior to administration, treat BP >185/110
Goal: <60 minutes
Post bolus/infusion, treat BP > 180/105 with Labetalol 10mg IV x1, may repeat x1
Nicardipine infusion if BP remains >180/105

Consider Mechanical Thrombectomy if LVO symptoms present, NIHSS >6, or RACE >or=5

No

Higher level of care needed?

NO: Monitor patient per hospital protocol

YES: Transfer

Yes

CTA head/neck if capable, but do not delay transfer
Consult neurology at a higher level stroke center to direct transfer destination

IV Alteplase if Last Known Well is <4.5 hours
Consider mechanical thrombectomy for wake up stroke or large vessel occlusion <24 hours from LTKW

Signs and Symptoms of Large Vessel Occlusion
NIHSS score >6 or RACE >4
Gaze Deviation
Hemi-neglect
Aphasia
Hemi-paralysis

Labs to consider:
CBC
PT/PTT/INR
CMP
Troponin

IV Alteplase
0.9 mg/kg (max dose: 90mg)
Give 10% of total dose as bolus over one minute
Administer remainder over one hour

VS/Neuro assessment
Q15min x 2 hours
Q30 min x 6 hours
Q1hour x 16 hours

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Intracerebral Hemorrhage Severity Score

Glasgow Coma Scale

GCS 3 - 4:	2 points
GCS 5 - 12:	1 point
GCS 13 - 15:	0 points

Intracerebral hematoma (ICH) volume

ICH ≥ 30cm^3:	1 point
ICH < 30cm^3:	0 points

Intraventricular hemorrhage

Yes:	1 point
No:	0 points

Infratentorial origin of ICH

Yes:	1 point
No:	0 points

Age

≥ 80 years:	1 point
< 80 years:	0 points

Total Score: _____

Interpretation

30-day mortality increases as the (summed) ICH score increases:

- ICH Score 0: no mortality
- ICH Score 1: 13%
- ICH Score 2: 26%
- ICH Score 3: 72%
- ICH Score 4: 97%
- ICH Score 5: 100%

RAPID ARTERIAL OCCLUSION EVALUATION for Large Vessel Occlusion

Item	Instruction	Result	Score
Facial Palsy	"show your teeth"	Absent Mild Moderate to Severe	0 1 2
Arm Motor Function	Extending arms 90°/hold 10sec (may raise both arms at same time, pronator drift	Normal to Mild- no drift Moderate drift in < 10 sec Severe- no effort to raise arm	0 1 2
Leg Motor Function	Extending/holding leg 30° for 5 seconds (one at a time)	Normal to Mild- no drift Moderate drift in < 5 sec Severe- no effort to raise leg	0 1 2
Head & gaze deviation	Is head & gaze deviation present?	Absent Present (head & gaze deviation to one side)	0 1
Aphasia (Right side hemiparesis)	Difficulty following 2 commands :close your eyes, make a fist) *Do not prompt with visual cues*	Normal- performs both tasks correctly Moderate- performs only 1 task correctly Severe- cannot perform either task	0 1 2
OR **Do not score for both aphasia AND agnosia- score for only one of these elements**			
Agnosia (Left side hemiparesis)	Inability to recognize familiar objects "whose arm is this? Can you move your arm?"	Normal- recognizes arm and attempts to move it Moderate-does not recognize **OR** is unaware of arm Severe- does not recognize **AND** is unaware of arm	0 1 2

RACE score ≥ 5 indicative of Large Vessel Occlusion → consider Mechanical Thrombectomy

Hemostasis and Coagulopathy Recommendations

Door to Treatment 90 minutes (2018 Recommendations)

Do not delay transfer to administer these treatments

1. Patients with severe coagulation factor deficiency or severe thrombocytopenia should receive appropriate factor replacement therapy.
2. Confer with receiving hospital provider about treatments prior to transfer and possible delays in transfer.
3. Consider reversal options if available:
    - ***a.*** Elevated INR due to vitamin K antagonist (Warfarin) consider:
        - **i. 4PCC (KCentra) - recommended:** INR 1.8-3.9: 25 units/Kg (max. 2500 units), INR 4-6: 35 units/kg (max 3500 units), INR >6: 50 units/Kg (max. 5000 units).
        - ii. **IV vitamin K:** recommended dose is 5 to 10 mg. The effect takes 12 – 24 hours.
        - iii. **Fresh Frozen Plasma (FFP):** dose will depend on INR. Several units might be needed. A practical formula is 1-2 units up to 20 ml/Kg. May repeat every 6-12 hours.
    - ***b.*** For patients with ICH with history of using dabigatran, rivaroxaban, or apixaban treatment
        - i. **Pradaxa**:
            - Idarucizumab (Praxbind): recommended dose in 5g IV x 1 either bolus or infusion.
        - **ii. Apixaban/Rivaroxaban:**
            - **Andexxa:** dosing will depend on patient's current apixaban or rivaroxaban dose
            - **Low dose:** 400 mg IV bolus ~ 30 mg/min followed by an IV infusion of 4 mg/min up to 120 minutes (low dose is Apixaban ≤ 5mg / Rivaroxaban ≤ 10 mg)
            - **High dose:** 800 mg IV bolus followed by an IV infusion of 8 mg/min up to 120 minutes (high dose: Apixaban > 5mg / Rivaroxaban > 10 mg or unknown dose)
        - *iii.* **Consider 4PCC (Kcentra)** 50 units/Kg (max. 5000 units*).*

Seizures and Anti-convulsant treatment*:*

1. Prophylactic anti-convulsant medication is not recommended
2. Clinical seizures should be treated with anti-convulsant drugs.
3. Options for anti-convulsant medications
    a. Levetiracetam (Keppra) 40 – 60 mg/Kg IV x 1
    b. Fosphenytoin 20 mg/Kg x 1 (maximum 1500 mg)