NEBRASKA
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DEPT. OF HEALTH AND HUMAN SERVICES
STATE OF NEBRASKA

PATIENT PRESENTING WITH NON-TRAUMATIC ACUTE INTRACEREBRAL HEMORRHAGIC STROKE

Patients identified as having non-traumatic acute intracerebral hemorrhagic (ICH) are at risk for early neurological deterioration and have a high rate of poor long-term outcomes. Early identification and management to reduce hematoma expansion is critical.

This protocol is intended to provide basic guidance on immediate medical management. Follow guidance of accepting facilities with neurosurgical expertise.

POLICY:
Patients presenting to [FACILITY NAME] with symptoms of an acute stroke symptoms will be emergently assessed per facility code stroke protocol, treated, and admitted or transported to [IDENTIFIED FACILITY] after assessment and medical stabilization.

Following imaging findings of intracerebral hemorrhage:

PROCEDURE:
Emergent evaluation of Acute Stroke presentation (See Evolution of Acute Stroke Symptoms)

1. A baseline Severity Score should be documented (i.e., NIHSS or ICH Score *See score on Page 4)
2. Emergent Notification of Receiving Facility for Further Management if Necessary
    a. Transfer
        i. Notify the receiving facility of the patient transfer request
        ii. Determine with receiving facility appropriate transfer (air or ground)
3. Obtain 12-lead ECG
4. Obtain O2 Saturation
5. Document patient's weight (in kg if possible).
6. Blood pressure monitoring q 15 minutes
7. Place on cardiac monitoring
8. Elevate Head of Bed 30 degrees
9. Prepare for immediate transfer to a facility with appropriate Neurosurgery coverage.

Blood Pressure
Initiating treatment as soon as possible and careful titration of BP lowering therapy to ensure continuous smooth and sustained control of BP is recommended. Follow the directions of the Accepting Facility

1. For ICH presenting with a SBP between 150 and 220 mmHg without contraindication to acute blood pressure treatment consideration of active lowering of SBP to 140 mmHg is safe for a goal of 130-150 mmHg.
2. If SBP is >220 consider aggressive reduction of blood pressure control with continuous intravenous infusion and frequent BP monitoring. Ensure smooth reduction with goal pressure of 130-150mmHg.
3. Recommended medications for BP management are (Rose, JC, Mayer, SA):
    a. Labetalol push: Initial bolus of 20 mg IV followed by 20 to 80 mg IV bolus every 10 minutes (maximum 300 mg)
    b. Labetalol drip: 0.5 to 2 mg/minute as IV loading infusion following an initial 20 mg IV bolus (maximum 300 mg).

c. Nicardipine drip: 5 to 15 mg/hour as IV infusion. Some patients may require up to 30 mg/hour.

Hemostasis and Coagulopathy
IMPORTANT: DO NOT DELAY TRANSFER TO ADMINISTER MEDICATIONS
Factor Replacement Therapy or platelets, should happen as soon as possible, IF readily available (Door to Needle goal 90 min)

1. Patients with severe coagulation factor deficiency or severe thrombocytopenia should receive appropriate factor replacement therapy.

2. Patients whose INR is elevated because of vitamin K antagonists (VKA), most common Warfarin, should receive therapy to replace vitamin K-dependent factors and correct the INR, and receive intravenous vitamin K (Kalus JS, 2013).
    a. 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)
    b. IV vitamin K (phytonadione): recommended dose is 5 to 10 mg. The effect takes up to 12- 24 hours for full effect (Dezee KJ, Shimeall WT, Douglas KM, Shumway NM, O'Malley PG)
    c. 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.

3. For patients with ICH who are taking dabigatran, rivaroxaban, or apixaban treatment with FEIBA, or other PCCs or Recumbent factor VIIA (rFVIIa) might be considered on an individual basis. The following are based upon manufacturer information.
    a. Pradaxa:
        I. Idarucizumab (Praxbind): recommended dose in 5g IV x 1 either bolus or infusion.
    b. Apixaban/Rivaroxaban:
        II. 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 Drugs:
1. Prophylactic anti-convulsant medication is not recommended on all Intracerebral hemorrhagic strokes
2. Clinical seizures should be treated with anti-convulsant drugs.
3. Possible anti-convulsant medications include:
    a. Levetiracetam (Keppra) 40 – 60 mg/Kg IV x 1 (Dewolf JL, Szalfarski JP)
    b. Fosphenytoin 20 mg/Kg x 1 (maximum 1500 mg)

References

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