

PATIENT PRESENTING AND FOUND TO HAVE ACUTE INTRACEREBRAL HEMORRHAGIC STROKE

POLICY:

After CT Radiology Report Patient is identified as Acute Intracerebral Hemorrhagic (ICH) Stroke

Patients presenting to [FACILITY NAME] with symptoms of an acute stroke symptoms will be emergently assessed, treated and admitted or transported to [IDENTIFIED FACILITY] after assessment and medical stabilization. If after CT, patient identified as Acute Intracerebral Hemorrhagic (ICH), the risk for early neurological deterioration and the high rate of poor long-term outcomes underscores the need for aggressive early management

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 **Neurosurgery** coverage.

Blood Pressure

Immediate aggressive management of extreme Blood Pressures is important. 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 consider active lowering of SBP to 140 mmHg is safe.*
2. *If SBP is >220 consider aggressive reduction of blood pressure control with continuous intravenous infusion and frequent BP monitoring.*
3. *Recommended medications for BP management are: :*
 - 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

1. *Factor Replacement Therapy or platelets, should happen as soon as possible, IF readily available (Door to Needle goal 90 min)*
2. *Patients with severe coagulation factor deficiency or severe thrombocytopenia should receive*

- appropriate factor replacement therapy.
3. 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.
 - 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:** recommended dose is 5 to 10 mg. The effect takes 12 – 24 hours.
 - 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.
 4. For patients with ICH who are taking dabigatran, rivaroxaban, or apixaban treatment with FEIBA, or other PCCs or Recombinant factor VIIA (rFVIIa) might be considered on an individual basis.
 - a. **Pradaxa:**
 - i. Idarucizumab (Praxbind): recommended dose in 5g IV x 1 either bolus or infusion.
 - b. **Apixaban/Rivaroxaban:**
 - i. **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)**
 - ii. **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
 - b. Fosphenytoin 20 mg/Kg x 1 (maximum 1500 mg)

References:

Hemphill, J. Claude III, et al (2018) Clinical Performance Measures for Adults Hospitalized With Intracerebral Hemorrhage: Performance Measures for Healthcare Professional from the American Heart Association/American Stroke Association. *Stroke*. 49, doi: 10.1161/STR.0000000000000171

Hemphill, J. Claude III, et al (2015) Guidelines for the Management of Spontaneous Intracerebral Hemorrhage: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. *Stroke*. 46, doi: 10.1161/STR.0000000000000069



Acute Stroke Protocol Assessment and Transfer Protocol Guidelines

- **Initiate Hospital Transfer protocol ASAP to avoid unnecessary delays.**
- Contact ED of receiving facility and ask for ED physician or Neurologist on-call
- Provide the following details when communicating with receiving facility:
 - Symptom onset time or last seen normal in as much detail as possible
 - NIHSS Score
 - Anticoagulant Use and Reversal Agent Used
- BP, glucose, and pertinent lab work
- EKG results
- Keep NPO
- Follow BP parameters as directed by Receiving Facility
- Fax documents to receiving facility
 - NIHSS form
 - ICH Score
 - Labs when available
 - EKG
- Send or Load CT results
- Complete Acute Stroke Assessment and Transfer Documentation Form and send with Patient or fax.

Intracerebral Hemorrhage Score

Purpose: To help with lead discussion with family regarding goals of further care and treatment

Glasgow Coma Scale

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

Intracerebral hematoma (ICH) volume

ICH \geq 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

\geq 80 years:	1 point
< 80 years:	0 points

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%
- ICH Score 6: 100% (estimated)