



Admit to MICU

Code Status Full Code or DNR

Diagnosis _____

Condition _____

Allergies _____

Intraventricular Intracerebral Both

CT findings: site _____ Size _____

Surgical Evacuation Yes No

Ventriculostomy Yes No

ICP Sensor Yes No

PbtO2 sensor Yes No

CBF Perfusion sensor Yes No

Start if Checked

Consult _____

- √ Vital signs/Neurologic Checks every 1 hr and prn.
- √ Alert Neurosurgeon/designee for change in neuro status
- √ Activity: Bedrest
- √ Head of Bed at 30 degrees as tolerated; maintain head/neck in neutral position
- √ Please place under IV: NS 1000mL with 20 mEq KCL
- √ PT eval/treat ROM in 72 hrs
- √ Swallow screening by nursing (if not already completed in the ED)
- √ Diet: NPO neutral position
- √ Swallow evaluation per speech language pathology
- Gastric Tube to low continuous suction:
 - Nasal Oral
- √ Intake and Output (Strict I/O hourly for fluid balance)
- √ Temperature Sensing Foley to drainage
- √ Sequential Compression stockings
- √ Supplemental O2 to keep SpO2 greater than 94%
- √ Incentive Spirometer every 1 hour while awake
- √ Check Blood glucose: If greater than 140, notify physician for order to Insulin Sliding Scale
- √ Maintain Systolic BP greater than _____ mmHg but less than _____ mmHg (Note: if has Ventriculostomy refer to page 2 for specific CPP parameters)
- IV: Normal Saline with 20 mEq KCL/L at _____ mL/hr
- _____ units Fresh Frozen Plasma

Labs/Tests:

- √ Daily CBC, ECMP, PPT/PTT
- √ Serum Sodium, Potassium, and Chloride every 4 hours if receiving 3% Saline.
- √ ECMP every 6 hours for 24 hours
- √ Phenytoin level 30 minutes prior to 4th dose (if on Fosphenytoin). Hold 4th dose until level resulted and reviewed
- ABGs every 12 hours and prn with changes in physiological status

Reason for Exam: Hemorrhagic Stroke

- √ Upright Chest X ray every AM: rule out atelectasis/pneumonia
- √ CT scan of brain without contrast in AM: rule out infarct
- √ CT scan of brain without contrast change in Neuro status.
- CT Brain with Perfusion Scan

√ For Temperature equal to or greater than 38.5°C Culture: Blood x 2, Sputum and Urine (repeat every 48 hours unless otherwise ordered)

Others _____

Medications: Start if Checked

- Esomeprazole (Nexium) 40 mg IVP daily or Omeprazole (Prilosec) 40 mg PO daily.
- Ranitidine (Zantac) 50mg IVPB every 8 hours or Ranitidine (Zantac) 150 mg PO every 12 hours.
- √ Acetaminophen 650mg every 4hrs PRN PO, per rectum or
- √ Ondansetron (Zofran) 4mg IVP every 4 hrs PRN nausea Nasogastric tube for temperature greater than 38.3 °C
- If nausea persists in 30 minutes after Zofran give Metoclopramide (Reglan) 10mg IVP. If nausea still persists in 30 min after Reglan, give Promethazine (Phenergan) 12.5 mg IVP. If nausea still persists in 30 min call Neurosurgeon/designee.
- √ Critical Care Bowel Program
- Atorvastatin (Lipitor) 40mg PO or per gastric tube daily x 21 day
- Fosphenytoin (Cerebyx): loading dose 15 mg/kg (round up to nearest 50 mg IVP (infusion not to exceed 150 mg/min). Then Fosphenytoin (Cerebyx): 100 mg every 8 hours IVP for 7 days
- Levetiracetam (Keppra) 1000 mg IVPB over 15 min (loading dose) followed by 500 mg IVPB over 15 min every 12 hours

For Systolic BP lowering as per specified ordered parameters: keep SBP less than _____ mmHg

- Labetalol 10-20 mg IVP every 15 minutes PRN x 4 doses then (Hold if Heart Rate less than 60 /min.)
- Clevidipine (Cleviprex) IV infusion (drip conc = 0.5 mg/ml). Start at 2 mg/hr (Rate = 4 mL/hr). Titrate every minute to Keep SBP at target to max of 32 mg/hr. Do not use for more that 72 hours.
- Nicardipine (Cardene) IV infusion (standard drip conc = 0.2 mg/mL): Start at 5mg/hr (Rate = 25 mL/hr). titrate 2.5-5mg/hr increments every 5 minutes to maximum of 15 mg/hr (Rate = 75mL/hr).

For Systolic BP rising as per specified ordered parameters: Keep greater than _____ mmHg

- Phenylephrine 0.1-2 mcg/kg/min IV -Titrate to maintain systolic BP within defined parameters
- Dopamine 5-10 mcg/kg/min IV -Titrate to maintain systolic BP within defined parameters

Factor VII 90 mcg/kg over 2-3minutes (order from blood bank) if within 3 hrs of event and not given in the Emergency Room.

_____ Date _____ Time _____ Physician Signature and Number



HEMORRHAGIC STROKE ORDERS

Start if Checked

- Levalbuterol (1.25mg) Atrovent (0.5mg) nebulizer treatments every 6 hrs while awake and as needed every 6 hours for shortness of breath and/or wheeze
- KCL 40 mEq PO or IVPB PRN serum potassium level less than 3.5mEq/L
- Cefazolin (Ancef) 1 gram IVPB every ___hrs x ___doses
- Others _____

If No Ventilator and/or Cerebral Monitor Orders End Here

If on a ventilator and has Ventriculostomy and PbtO2 or CBF Perfusion Sensor

Analgesia/Sedation: (see SAD protocol).

- Morphine IV infusion starting at 2mg/hr and titrate up to 5 mg/hr for Behavioral Pain Scale of 3
- Midazolam (Versed) IV infusion starting at 1 mg/hr and titrate to 5mg/hr for deep sedation
- Propofol starting at 10 mcg/kg/min and titrate up to 50 mcg/kg/min IV infusion if **ICP greater than 20 or if PbtO2 less than 20mmHg or if CBF Perfusion less than 20mL/100g-min** respective of sensor type
- Neuromuscular Blockade** as needed for ICP control, shivering and or ventilator control.
Cisatracurium (Nimbex) continuous infusion: 1st bolus 0.2mg/kg followed by continuous drip starting at 0.5mcg/kg/min and titrate to maximum of 10 mcg/kg/min to maintain 2/4 train of four (TOF). While on Neuromuscular blocker check/document TOF every one hour. In the event that TOF is less than 2/4 turn drip off for one hour then recheck. Resume drip when TOF is 2/4 at 1/2 last dose and continue to check TOF every hour and follow previous directions
- TPA _____mg at bed side for intraventricular injection
- Drain Ventriculostomy continuously to head pressure of _____mmHg (**leave open to drain**)
- Maintain temperature 36-37° degrees C.
Intra-Vascular System see protocol
- Maintain temperature 34-36° degrees C.
Intra-Vascular System see protocol
- ✓ Resting ankle splints

Determine optimal CPP (evidenced by ICP less than 20mmHg and PbtO2 greater than 20mmHg and/or CBF Perfusion greater than 20mL/100g-min)

Target CPP is between 60-80 mmHg.

When out of range:

1st address volume:

Keep CVP 6-10 mmHg with 250 mL Normal Saline IV fluid challenge over 15-20 min. as needed to achieve set parameters.
 - Administer Packed RBCs IV to increase Hematocrit to greater than 30%. (**if PbtO2 is less than 20 mmHg or if CBF Perfusion is less than 20mL/100g-min**)

2nd Once CVP is within range and CPP less than 60mmHg **add vasopressors:**

- **Phenylephrine** (Neosynephrine) 0.1-2mcg/kg/min titrate to achieve set parameter (if Neosynephrine has reached 2 mcg/kg/min and set parameter is not met, augment with dopamine)
- **Dopamine** 5-10 mcg/kg/min titrate to achieve set parameter

Titrate PaCO2 to keep ICP less than 20 mmHg and **PbtO2mmHg greater than 20mmHg or CBF perfusion greater than 20mL/100g-min**. Target PaCO2 34-40 mm Hg. Avoid hyperventilation

LICOX	HEMEDEX
If PbtO2 less than 20 mm Hg test response to 100% FI02 for 15 min while manipulating other parameters. If no change in PbO2 notify Neurosurgeon or designee. If rise in PbO2 noted, maintain 100% FI02 until PbO2 is greater than 20mmHg then titrate FI02 to maintain PbO2 greater than 20mmHg and SaO2 at 100.	CBF Perfusion is less than 20mL/100g- min test response to 100% FI02 for 15 min while manipulating other parameters. If no CBF Perfusion notify Neurosurgeon or designee. If rise in CBF Perfusion noted, maintain 100% FI02 until CBF Perfusion is greater than 20mL/100g-min, then titrate FI02 to maintain CBF greater than 20mL/100g-mmin and SaO2 at 100.

IF ICP REMAINS GREATER THAN 20mmHg:

- 3% Saline 250 mL over 20 minutes every 4 hours for ICP greater than 20 mmHg. Hold if Sodium is less than 134 mEq/L or greater than 155 mEq/L
- Mannitol 0.5-1.25 gm/kg IV bolus followed by 250mL Normal Saline every 4 hrs for ICP greater than 20mmHg; keep serum osmo less than 315 mOsm/kg and maintain euolemia. Hold Mannitol if Sodium is 155 mEq/L or greater.
- May alternate Mannitol and Hypertonic Saline

Date

Time

Physician Signature and Number



**HEMORRHAGIC
STROKE
ORDERS**