HOSPITAL

DEPARTMENTAL POLICY

TITLE: INSERTION OF INTRACRANIAL PRESSURE MONITOR

Date Adopted: **Date Revised:**
Supersedes: **Date Reviewed:**

DISTRIBUTION:
Nursing

STAFF LEVEL:
RN, GN, LVN, GVN

PROCEDURE:

Indication

Intraventricular catheters are used to:

1. measure and continuously monitor Intracranial Pressure (ICP).
2. calculate cerebral perfusion pressure.
3. treat elevated ICP by providing access for cerebrospinal fluid (CSF) drainage.
4. Necessary for a patient with head trauma resulting in intracranial bleeding, edema, over production or insufficient absorption of CSF. An increase in ICP could result in decreased cerebral perfusion and or brainstem herniation.

Equipment

- Cranial access kit
- ICP monitor kit (fiber optic ICP monitor)
- ICP monitor (microprocessor)
- Transducer cable
- Monitor interface cable
- Shave prep kit
- Hemodynamic line with transducer
- Ventriculostomy bag (optional)
- Stopcock

Procedure **(DIAGRAM TO FOLLOW)**

1. Place patient in supine position.
2. Shave and prep insertion site determined by physician.
3. Turn on ICP monitor and connect the Pre Amp cable to the monitor at the appropriate receptacles.
4. Connect the "slave" cable from the ICP monitor to the pressure module in the EKG monitor.

5. Open the non-sterile end of the ICP monitor kit and connect the Pre Amp cable to the transducer connectors on the ICP catheter.
6. Before inserting the catheter, the ICP monitor should show a pressure of 0. If not, use the provided tool from the kit to turn the zero adjustment until the monitor reads 0.. After the catheter is inserted, further zero adjustments should not be made. Dispose of the provided tool from the kit.
7. Physician will then anesthetize the site, drill small holes into the skull and insert catheter or bolt as indicated.
8. After insertion it may be necessary to adjust the scale on the ICP monitor.
9. To zero the bedside EKG monitor (if slaved to the ICP monitor), press the Cal Step button on the ICP monitor until it reaches 0, while keeping button depressed, zero the pressure module on the bedside monitor then release the button on the ICP monitor.
10. If patient has an arterial BP line, the bedside monitor should read the ICP and CPP.
11. If ventriculostomy drain is inserted, a drainage bag will be connected to ICP catheter, with bag leveled at the auditory canal at a height determined by physician (ex. 1-2 cm above or below ear).
12. Never apply pressure to the ICP drainage system or ICP catheter.

Nursing Assessment

1. Catheter should never be bent or kinked (may destroy the fiberoptics).
2. Document procedure and patient response.
3. Assess and record ICP and CPP reading at least every hour.
4. Check neurologic status (Glasgow coma scale) every hour.
5. Administer sedation and/or osmotic diuretics as ordered. If mannitol used, urine output should be monitored.
6. Record CSF output every hour if ventriculostomy drain in place. Describe color.
7. Assess insertion site for signs and symptoms of infection.
8. When moving or transporting patient, disconnect catheter from the PreAmp cable; this will not affect calibration.
9. Normal ICP < 20 mm Hg.
10. Cerebral Perfusion Pressure should be 70-100 mm Hg (MAP – ICP = CPP).

Complications

1. Central Nervous System infection.
2. Excessive or rapid loss of CSF can decompress cranial contents leading to damage of the bridging cortical veins causing rupture and hematoma formation. May also lead to rupture of existing hematoma or aneurysms.

REFERENCES:

American Association of Critical Care Nurses, *AACN Procedure Manual for Critical Care,* 2010, Sixth Edition, W.B. Saunders Company, Philadelphia, Pennsylvania.

American College of Surgeons, *Advanced Trauma Life Support*, 2014, Seventh Edition, Chicago, Illinois.

SIGNATURES:

Originating department / committe

Signature

Exec Leade