

VP SHUNT

Post-Op Care and Pumping of Shunt

Indications

- To normalize intracranial pressure in patients with hydrocephalus by draining the appropriate amount of cerebrospinal fluid into the peritoneum.

Key points

- Ventriculo-peritoneal (VP) shunt is used primarily for drainage of the CSF from the ventricles to an extracranial compartment, specifically the peritoneal cavity (a large, vascular surface area that allows for easy reabsorption of fluid).
- The preferred procedure for infants is the ventriculo-peritoneal shunt because there is a greater allowance for excess tubing (can be coiled in belly), which minimizes the number of revisions needed as the child grows.
- Post-operatively, it is important to position the baby's head on the un-operated side to prevent pressure on the shunt valve and surrounding skin. The hardware of the shunt sits on the outside of the skull.
- Maintain head of bed (HOB) at 30 degrees to promote shunt functioning.
- **Do not pick up babies up under their arms, as this could cause displacement of the shunt tubing.**
- On post-op DAY 1, baby should have a CT scan (or ultrasound) and shunt series.

Assessment

○ Neuro Vital Signs (NVS) and Vital Signs

➤ What?

- Assess pupil size, reaction to light
- Assess motor skills of arms and legs
- Assess level of consciousness. Always mark the best response.
- Verbal response is impossible to assess therefore write C if baby cries, T for trach or E for ET tube.
- Under motor response assess response to pain. Best response in neonate is flexion to pain.
- HR, RR, O2 sat with FiO₂, BP, T

➤ When?

- Q 15 min X4 (for 1 hr.)
- Q 30 min X4 (for 2 hrs.)
- Q 1H X 12 hrs.
- Then progress NVS to Q 2H X 12 hrs.; continue VS as per hemodynamic/ventilatory status and NICU protocol.
- Then progress NVS to Q 4H until discharge; VS should be continued as per hemodynamic/ventilatory status and NICU protocol.
- Do NVS more frequently if any deterioration occurs. Report any major changes to doctor.

- Head circumference

- When?

- Q 24 h (or as ordered)

- Monitor for signs and symptoms of increased intracranial pressure (ICP)

- Irritability with manipulation
 - Lethargy
 - Decrease feeding interest
 - Vomiting
 - High pitching cry
 - Full, tensed anterior fontanel, increasing head circumference
 - Distended scalp veins
 - Downward deviation of eyes (sunset eyes)
 - Pupils inequality and sluggish respond to light
 - Respiratory depression
 - Apnea
 - Systolic hypertension
 - Widening of pulse pressure
 - Bradycardia
 - Tachycardia

- Monitor for signs and symptoms of dehydration

- Sunken fontanel
 - Diminished skin turgor
 - Dryness of mucous membranes

- Monitor for signs of infection

- Temperature instability (fever or inability to maintain temp)
 - Lethargy
 - Apneas and bradys
 - Change in FIO2 demands
 - Change in perfusion
 - Oozing, redness, discharge from wound

Procedure – Pumping of Shunt

- What?

- Most shunts have a depressible reservoir that can be pumped to help increase the flow of CSF from the baby's brain into the peritoneum. Neurosurgery will prescribe a pumping routine depending on how much fluid needs to be drained to relieve the hydrocephalus. Some babies do not need to have their shunts pumped; others do. (FORMAT)

- When?

- As ordered by neurosurgery

- How?

1. Check doctor's order for how often to pump/day and how many times.
2. Depress the reservoir of the shunt quickly and firmly the required amount of times.
3. Document whether the reservoir depresses and refills easily
4. Check abdominal girth, head circumference and ensure stooling every day.
5. Watch for skin breakdown around the shunt area (more at risk because of pressure/friction with pumping).
6. Stop if valve stays depressed > 30 seconds

Procedure – Dressing Change

- When?

- Post Op DAY 2 – dressing change
- Post-Op DAY 7 – dressing removal (incision left open to air)
- The dressing should not be changed outside of above times unless it is soiled (from the Inside or the outside) or there is sign of wound infection. Most surgeons will use reabsorbable sutures unless there is an issue with surrounding skin (ie. Previous surgery in area or infection). If non-reabsorbable sutures used (black sutures), they will need to be removed between POD # 7-10.

- Material

- Mask
- Dressing set
- Chlorhexidine gluconate 0.5% & 70% alcohol swabs
- Telpha
- Hypafix
- Sterile gloves

- How?

1. The dressing should be done using a strict sterile technique.
2. Perform hand hygiene according to MUHC infection control guidelines
3. Remove old dressing. The use of isopropyl alcohol to loosen the glue of the adhesive dressing may be helpful.
4. Assess the wound and area around the wound. **If any concerns about the incision are noted (i.e. redness, swelling, discharge) notify physician.**
5. Set up sterile field using sterile dressing tray
6. Put on sterile gloves
7. Clean incision with Chlorhexidine Gluconate 0.5% in 70% alcohol swabs, unless otherwise indicated. Allow solution to dry by evaporation.
8. Cover incision with non-adherent dressing such as Telpha and cover that with Hypafix, unless otherwise advised by physician.
9. Document procedure on Wound Assessment Record sheet.