

Tapping Ventricular Access Device (Adapted from RHCYP guideline)

Aim of Procedure

- To safely 'tap' a ventricular access device (VAD) using strict aseptic, non-touch technique (ANTT);
 - to treat increased intracranial pressure
 - to collect cerebrospinal fluid (CSF) samples

Equipment

Appropriate skin prep

Gown, mask and surgical hat

Dressing pack

Butterfly needle 23g (blue)

5ml syringe

Specimen bottles – appropriate bottles for specific tests

Sterile equipment for pressure monitoring- either a manometer or a fluid infusion tubing with tape measure

3 way tap

Procedure

Preparation:

- If procedure performed for treating increased intracranial pressure then an USS of brain should be performed on the day of the procedure to ascertain Ventricular Indices and these should be plotted.
- Ensure that parents are aware that the procedure is to be performed, the reasons why and risks involved. Verbal consent should be obtained.
- Continuous monitoring of ECG and SA02.
- Use the procedural hypothermia guidance to maintain normothermia.
- Ensure resuscitation equipment is to hand.
- Consider use of either MBM or sucrose prior to procedure and non-nutritive sucking during procedure.
- Swaddle the infant well. To avoid movement, an assistant must hold the head firmly between their palms with the infant supine and horizontal.
- Ensure that you have scrubbed appropriately and donned the appropriate protective equipment.

Accessing the VAD:

- The procedure is performed as an aseptic technique with surgical skin prep for 3 minutes and requires a nurse to hold the baby, a member of staff to access the device and an additional member of staff to aid with pressure measurement and sample collection
 - Both members of staff carrying out the procedure should scrub and don hat, mask, gown and two pairs of gloves
 - Assemble manometer if using
 - Connect the three-way tap to the butterfly needle
 - Locate and clean the skin over the VAD with cleaning solution.
 - 1st clean: Clockwise over VAD for 30 seconds followed by 30 seconds drying time.
 - 2nd clean: Anticlockwise cleaning for 30 seconds followed by 30 seconds drying time.
 - 3rd clean: Clockwise over VAD for 30 seconds followed by 30 seconds drying time.
 - Remove your outer pair of gloves
 - Insert butterfly needle into the VAD ensuring end of the butterfly port is below the insertion site (this prevents entrainment of air into the VAD).
 - Open the three way tap to ensure that the CSF flows freely (you may need to gently aspirate with a syringe to ensure patency of VAD in some cases).
 - Close the three-way tap
 - The assistant should attach the manometer/tubing and the CSF will flow upwards into the manometer/tubing.
 - Wait for the CSF to rise within the manometer/tubing. This may take some minutes.
 - Allow the infant to settle if crying, and the pressure to stabilize before taking a reading.
 - When it has reached its maximum level take note of the height of the column in cm, using the tape measure if needed.
 - Close the three way tap and disconnect manometer/tubing.
 - Open the three way tap and drain CSF into a sterile container and for various samples – usually C&S, microscopy, glucose and protein
 - If the aim of the procedure is to reduce pressure then it is usual to remove up to 10ml/kg of CSF during one episode.
 - The CSF pressure should be re-checked at the end of the procedure by reattaching the manometer and reading the height of the column. Ideally it should be below 6cm.
 - Remove butterfly needle once desired amount of CSF has been removed.
 - Apply a plaster to the site.

Post-procedure management:

- Record procedure in relevant section in Badger.
- Update parents.
- Ensure prompt sending of specimens to labs.