BRIGHAM HEALTH
BRIGHAM AND WOMEN'S HOSPITAL

Appendix 3- Notes on Interventions for PHVD

- **Lumbar Puncture (LP)**
  - **Timing:** Generally, once the baby is eligible, LP should be started. However, waiting till DOL 5-7 allows for excessive fluid to form around the clot. Also waiting might decrease risk of rebleed.
  - **Platelet Count:** There is no clear evidence for a clear cutoff. Based on recent concerns of adverse effect of platelet transfusions on preterm infants, PLT transfusion will be given before LP only if platelet count is less than 50,000
  - **Volume:** Goal is 10 ml/kg/tap.
  - **Labs:** Send the CSF for cultures, cell count, protein and glucose.
  - **Frequency:** Might be attempted daily. Pre and Post cUS can help monitoring response.

- **Current neurosurgical interventions choices at BCH**
  - For babies < 38 weeks PMA with progressive PHVD (red zone) in spite of attempting LP X 3, VSGS will be attempted.
  - If VSGS does not provide adequate drainage, intermittent taps of the reservoir by neurosurgeons will be attempted.
  - For full gestation and older, ETV/CPC will be the primary treatment if the CISS MRI shows open prepontine cistern. Otherwise, a VP shunt will be placed.
  - MRI with CISS sequence can be requested to be done at one of the 3T scanners at BWH and does not need transfer to BCH.
  - For those who get a VSGS and are candidate for ETV/CPC, neurosurgery will consider waiting if possible to do ETV/CPC close to 3 months corrected age for better success chances.
  - Although consultation should go to the general Pediatric Neurosurgery team, please request involving Dr. Benjamin Warf in these cases if available and in addition, email him at Benjamin.Warf@childrens.harvard.edu
- **Ventricular-Subgaleal Shunt (VSGS)**
  - **Minimum weight:** 650 grams.
  - **Platelet Count:** There is no clear evidence for a clear cutoff for minimal perioperative counts. Consider maintaining > 100,000 within 24 hours of neurosurgical intervention, after discussion with the neurosurgical team.
  - **Postoperative care:** Routine skin care with avoiding tight pressure (e.g. by CPAP hat) on the collection pocket site.
  - **Postoperative imaging:** cUS is needed at least 2-3 times a week for the immediate postoperative period then could be done less frequently if ventricular measurements stabilize.

- **VSGS tapping:** Although theoretically VSGS could be adequate to drain the CSF, if not, its function is easily augmented by tapping either the reservoir or the subgaleal pocket by the neurosurgeons.
    - **Personnel and technique:** The VSGS can be drained under sterile precautions by qualified personnel. At this time, this is only limited to the Neurosurgery team from BCH.
    - **Volume:** CSF drainage should not exceed 10 ml/kg each time and the rate should not exceed 1 ml/min.
    - **Frequency:** Not more than once a day.
    - **Goal:** VSGS tapping should be continued with a goal of VI < 97th percentile in 7-10 days postoperatively
    - **Labs:** Send the CSF to the lab 2-3 times a week for cultures, cell count, protein and glucose.
    - **Monitoring:** Check BMP and urine sodium twice a week. Consider supplementing sodium to keep serum Na 135-145 mEq/L and urinary Na > 20 mEq/L.