Guidelines for VP Shunt Management in Adults with Intellectual and Developmental Disabilities: The Nurse’s Role

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Quiz

1. How is hydrocephalus classified?
2. How many ventricles are in the brain?
3. What is the purpose of CSF?
4. The term intellectual disability replaces which term formerly used to describe someone who had a low IQ?
5. Name two signs of possible VP shunt infection.
Objectives:

At the conclusion of this workshop the learner will be able to:

1. define intellectual and developmental disabilities (IDD).
2. identify causation between conditions requiring ventriculo-peritoneal (VP) shunts and IDD.
3. explain the purpose and function of a VP shunt.
Objectives Continued:

- 4. articulate nursing responsibilities in the care and management of people with a VP shunt.
- 5. recognize signs and symptoms of VP shunt complications.
- 6. discuss the required documentation when caring for people with IDD who have VP shunts.
Causation Between Conditions Requiring Ventriculo-peritoneal (VP) Shunts and IDD

- **Anatomy** of the brain; Structures and cerebral spinal fluid

  - **Skull** - 8 bones form the skull, 14 bones form the face
  - **Brain** - composed of 3 parts: brainstem, cerebellum & cerebrum (2 hemispheres, 4 lobes)
  - **Ventricles** – 4 ventricles (2 lateral, -cerebral hemis., 3rd connect with 3rd through foramen of Monro, connect to 4th through aqueduct of Sylvius
Causation Continued

- CSF produced inside the ventricles deep within the brain.

- CSF fluid circulates inside the brain and spinal cord and then outside to the subarachnoid space, cushioning and bathing brain.

- CSF production /absorption is balanced.

- Disruption /blockage in system cause buildup of CSF, causing enlargement of ventricles = hydrocephalus.
Causation Continued

- Common sites of obstruction: 1) foramen of Monro, 2) aqueduct of Sylvius, and 3) obex


Classification of Hydrocephalus

- Diagnosis of hydrocephalus; Congenital, Acquired, Normal Pressure Hydrocephalus (NPH)
  
  **Congenital** or **Acquired**- communicating – blockage, or noncommunicating- absorption  
  **NPH**- communicating, partial absorption, mostly middle age adults > gradual sx: urinary incontinence, short term memory loss, gait disturbances

[http://www.nhfonline.org/normal-pressure-hydrocephalus.htm](http://www.nhfonline.org/normal-pressure-hydrocephalus.htm)
Purpose and Function of Shunts

- Indications for Shunts
  
  Remove CSF from the brain to equalize pressure related to the production and absorption of fluid.
  
  Minimize or prevent brain damage related to increased intracranial pressure.
Purpose and Function of Shunts

- Enhance opportunities for young children to have optimal growth and development
- Minimize manifestations of neurological deterioration in adults (NPH)

Facts and Figures about Hydrocephalus

http://www.hydroassoc.org/docs/FactSheet_Stats.pdf
Surgical Management of Hydrocephalus

- The most common type of shunt is the ventriculo-peritoneal (VP) shunt. This shunt drains fluid from the ventricle to the body’s abdomen.
- Other types that are less common are:
  - Ventriculo-atrial (VA) shunts — VA shunts move the fluid to a vein, usually in the neck or under the collarbone;
  - Ventriculo-pleural shunts — These shunts move fluid to the chest around the lungs; and
  - Ventriculo-gall bladder shunts — These shunts move fluid to the gall bladder.
Intellectual and Developmental Disabilities (IDD)

Intellectual disability is a below-average cognitive ability with three (3) characteristics:

- Intelligent quotient (or I.Q.) is between 70-75 or below
- Significant limitations in adaptive behaviors (the ability to adapt and carry on everyday life activities such as self-care, socializing, communicating, etc.)
- The onset of the disability occurs before age 18.

http://aaidd.org/intellectual-disability/definition
Intellectual and Developmental Disabilities (IDD)

Developmental Disabilities - disabilities that are:

- manifested before the person reaches twenty-two (22) years of age,
- severe, long-term problems. They may be physical, such as blindness. They may affect mental ability, such as learning disorders. Or the problem can be both physical and mental, such as Down syndrome. The problems are usually life-long, and can affect everyday living.

Nursing Management of Shunts in Adults with IDD

- Nursing Assessment
  Data Collection: establish person’s baseline/what is typical for the person? Parental, patient and provider engagement

  Health history /PMH, hospitalizations, surgery, Ht, Wt, VS, physical neurological/motor problems, history of seizures, falls, headaches, head banging medications,

  Developmental and intellectual capacities
  Coping strategies, feelings of loneliness, isolation

  Communication patterns

  Family involvement
Nursing Management of Shunts in Adults with IDD

- Health maintenance – immunizations/vaccinations, dental screening; other screenings possible
- Abuse screening
- Drug and alcohol screening
- Sexual activity
Clinical and Behavioral Indicators of VP Shunt Complications

- Complications:
  A. Skin Integrity
     Over Shunt Site- observe for areas of skin breakdown on the head and along the shunt site
     If mobility impaired /poor circulation at risk for skin breakdown
  B. Latex and silicone allergies
Clinical and Behavioral Indicators of VP Shunt Complications

C. Shunt Malfunction and Shunt Infection – similar symptoms- observe for:

- Fever
- Vomiting (usually in AM)
- Headache
- Change in level of alertness and behavior
- Lethargy, drowsiness or irritability
- Decrease in appetite
- Visual disturbance (downward gaze, difficulty focusing)
- Change in gait pattern (unsteady)
Clinical and Behavioral Indicators of VP Shunt Complications

D. IMMEDIATE DANGER

- Seizures
- Apnea/breathing cessation
Nursing Responsibilities in the Care and Management of People with IDD with (possible) Shunt Complications

- Adhere to strict hand hygiene as per agency policy
- Provide safe, effective care environment at all times for the client
- Closely observe clients for deviations from normal behaviors
- Take vital signs- Monitor fever > 100
- Be alert to any changes in physical status, check skin for redness along shunt site, on bony prominences
- Check hydration status- fluid consumption
Nursing Responsibilities in the Care and Management of People with IDD with (possible) Shunt Complications

- Notify other team members of your concerns and ask for assistance
- Contact PCP/neurologist/health care decision-maker immediately and report observations
- Implement seizure precautions according to agency guidelines
- Prepare to initiate CPR if breathing stops and activate the emergency medical system if unsure about person’s behavior
- Minimize stimuli and provide privacy

St. Vrain VP Shunt Individualized Health Plan
Seizure Precautions

Assist person to the floor.
Loosen tight clothing and clear area.
As soon as feasible, turn client to side to prevent aspiration of saliva or vomitus.
Note time of onset of seizure and duration.
Notify EMS if seizure is of a duration beyond protocol set by neurologist
Remain with person and anticipate transport by emergency personnel.

Adapted from Dillon School District Two
Required Documentation

- Assessment findings
- Interventions
- Agency forms
- Notes to healthcare decision-maker or day program or residential provider
- Any communication related to care administered
- Disposition after interventions
- Evaluation of person
The End

- Questions

- Thoughts