The Neuropsychology of Adult Hydrocephalus

The Sandra and Malcolm Berman Brain & Spine Institute
Baltimore, Maryland
Adult Hydrocephalus

- Normal Pressure Hydrocephalus
- Obstructive Hydrocephalus
- Communicating Hydrocephalus
What is Hydrocephalus?
Gait Impairment

- **Gait disturbance** (up to 90%)
- “Apraxic” or “magnetic” gait, inability to lift legs as if they are stuck to the floor
- Often confused with Parkinsonism or vascular disease since patient’s may display balance difficulty, shortened stride length, difficulty turning and rigidity
- NPH more broad based, outward rotated feet with diminished height of steps
Urinary or Bowel Problems

- **Urinary incontinence (45-90%)**
- May initially only complain of urgency or frequency
- Rarely may also have fecal incontinence
Cognitive Impairment

- **Mental impairment** (up to 80%)
  - subcortical-like dementia
  - slowing of verbal and motor responses - apathetic, forgetfulness, decreased attention
- preservation of language and visuospatial skills
- frontal release signs may be present
Emotional & Social

- Poor initiation
- Poor engagement
- Withdrawn
- Avoidant of social activities
- Avoidance of activities that challenge gait
What to do?

- Shunt Surgery
- Endoscopic third ventriculostomy (ETV)
- Management of symptoms
Lateral ventricle

Third ventricle

Fourth ventricle

Shunt system to drain spinal fluid from ventricles

Normal

Compression of brain due to build-up of spinal fluid in ventricles

Hydrocephalus

Spinal fluid drains into abdomen
Neuropsychology

• Diagnostic Testing
  – Looking for cognitive patterns that are similar or not similar to hydrocephalus

• Pre and Post CSF Drainage
  – Predict cognitive benefit of shunt placement
Management Strategies

• Memory & Attention
  – Keep It Simple
    • One thing at a time
    • No flooding of information
    • Have repeat
    • Eye contact
    • Minimal Distractors
  – Priming not challenging
    • “Remember when we went to the beach and you said…….”
Management Strategies

• Initiation
  – Priming – helping them get started
  – Break task down into small pieces

• Slow processing
  – Be patient and wait
  – Do not talk or do for them
  – Give space in conversations
Management Strategies

- Social Avoidance
  - Small group
  - Low stimulation settings
- Depression
  - Therapy
  - Medication