

Ventriculoperitoneal Shunt Outcomes of Normal Pressure Hydrocephalus: A Single-institution Experience of 116 Patients

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Introduction

Permanent cerebrospinal fluid (CSF) diversion with a ventriculoperitoneal shunt (VPS) is a treatment option for patients with normal pressure hydrocephalus (NPH). Herein, we examine predictors of VPS outcomes and the complication rates

Methods

This is a retrospective review of 116 patients (68 male, 48 female) with NPH who underwent VPS placement (March 2008 to September 2017). Patients were admitted for overnight observation after VPS surgery and were discharged on the next day after a computed tomography scan was obtained. Chi-square table analysis was used to examine associations of clinical improvement after shunting. A subjective 3-level outcome measure (worse vs. same vs. better) was scored by the attending surgeon for NPH symptoms at each follow-up timepoint. Complications associated with the VPS procedure were recorded.

Results

The mean age was 77 years. The mean hospital length of stay was 1.8 days. At the first follow-up visit, 72 (62%) reported significant improvement in their gait, 20 (17%) reported improvement in their incontinence symptoms, and 23 (20%) reported improvement in their cognition. Clinical outcomes over time are summarized in figures 1, 2 & 3. A shorter duration of gait disturbance predicted improvement in gait after shunting ($p < 0.01$). Being on a cognition-enhancing medicine predicted improvement in cognition and/or incontinence after shunting ($p < 0.05$). Complications included misplaced proximal catheters ($n=6$) of which 2 required repositioning; asymptomatic catheter tract hemorrhages ($n=3$); bilateral hygromas ($n=5$) improved with valve pressure adjustment; subdural hematomas ($n=7$) of which one required evacuation; and CSF leak ($n=1$).

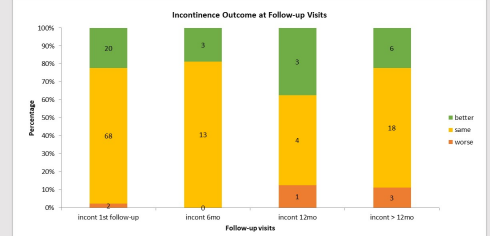
Conclusions

The placement of VPS in patients with NPH is well-tolerated and associated with improved outcomes at least in the short-term follow-up (<6 months). In this sample, gait improvement was more significant as compared to incontinence and cognition. A shorter duration of gait disturbance was associated with greater improvement in gait after VPS.

Learning Objectives

- 1) Recognize normal pressure hydrocephalus as a real health problem in elderly
- 2) Understand the diagnostic criteria and predictors of good outcomes after shunting
- 3) Identify potential complications and complication rates.

Incontinence Outcomes



Cognitive Outcomes

