

Introduction

Cerebrospinal fluid (CSF) diversion, most commonly via ventriculoperitoneal shunt (VPS) insertion, is the standard treatment for the syndrome of normal pressure hydrocephalus (NPH). In a subset of patients, an initial improvement in symptoms is followed by delayed deterioration, in the absence of a clear etiology. We sought to examine this formally in our own cohort of patients with extended follow-up.

Methods

Records of all patients undergoing placement of VPS for NPH between January 2011 and December 2016 were reviewed and 72 patients were identified with at least 12 months of follow-up. Improvement of deterioration in cognition, gait, and urinary continence were recorded. The occurrence of new diagnoses, adverse events, and shunt investigations were also assessed.

Results

Demographics and presenting symptoms are summarized in Table 1. 44% (n=32) of patients demonstrated progressive or sustained improvement in their symptoms after VPS placement (mean follow-up 31.9 months; Table 2). Of the remaining patients, the majority (n=37) demonstrated an early postoperative improvement followed by deterioration during the follow-up period (mean 25.9 months; Table 3). 92% of patients had documented evidence (shunt tap or imaging studies) confirming shunt function and 34% had a transient response to shunt valve adjustment. 12 patients eventually received additional neurological diagnoses that could in part explain their deterioration. Presence of the classic symptoms triad, gender, preoperative adjuvant testing, and follow-up were found to be similar between groups.

Conclusions

Despite evidence of appropriate shunt function, a significant proportion of patients experienced a deterioration in their symptoms after an initial improvement. In most of these patients, no new diagnosis was made that could explain their deterioration. These results suggest that the syndrome of normal pressure hydrocephalus may exist as part of a complex, progressive dementia. Further investigation is warranted to better understand this disease and its response to CSF diversion.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the typical signs and symptoms of NPH and expected response to CSF diversion, 2) Discuss, in small groups, conditions which may present with similar symptoms and can obscure response to treatment, 3) Consider factors which may predispose patients to suboptimal outcomes in this population.

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