
Predictors of subsequent overdrainage and clinical outcomes after ventriculoperitoneal shunting for idiopathic normal pressure hydrocephalus


Abstract:

BACKGROUND: Little is known about variables associated with overdrainage complications and neurofunctional and health-related quality of life outcomes in idiopathic normal-pressure hydrocephalus (iNPH) patients after shunt surgery. OBJECTIVE: To identify candidate demographic and disease-specific predictors of overdrainage and patient-related outcomes, allowing for more personalized care of patients with iNPH. METHODS: This was a secondary analysis of the dataset of the SVASONA study, a multicenter randomized trial comparing gravitational and conventional gravitational valves for treating iNPH. We evaluated the association between baseline items and the incidence of overdrainage, using different endpoint definitions. RESULTS: We identified only a few variables associated with a possible increased risk of overdrainage. Apart from using conventional rather than gravitational valves, longer duration of surgery and female sex were associated with a higher risk of clinical signs and symptoms suggestive of overdrainage (hazard ratio: 1.02, 95% confidence interval: 1.01-1.04 and 1.84, 95% confidence interval: 0.81-4.16). The occurrence of clinical symptoms of overdrainage, and the need for exchanging a programmable by a gravitational valve may adversely affect disease-specific outcomes like the Kiefer score. CONCLUSION: Few, if any, baseline and treatment characteristics may be helpful in estimating the individual risk of complications and clinical outcomes after shunt surgery for iNPH. Patients should be informed that longer surgery for any reason may increase the risk of later overdrainage. Also, women should be counseled about a sex-associated increased risk of the development of clinical symptoms of overdrainage, although the latter cannot be distinguished from a generally higher prevalence of headaches in the female population.

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