

Doctoral thesis Kerstin Andrén, May 2020

*Natural course and long-term prognosis in idiopathic normal pressure hydrocephalus - The effect of delayed surgery and clinical factors on outcome and survival.*

## Popular science summary in English

In idiopathic normal pressure hydrocephalus, iNPH, a neurological disease that mainly affects the elderly, the brain's ventricular system is enlarged for unknown reasons. The disease gives rise to gait and balance disorders, urinary incontinence and cognitive impairment or dementia. Treatment via neurosurgical shunt surgery - in which a thin tube is operated on to continuously drain excess cerebrospinal fluid either to the abdominal cavity or the heart - improves 80% of patients.

The thesis studies the effect of delayed treatment on disease development, treatment results and survival. It also studies the importance of several different factors for treatment outcomes and long-term survival. Patients who had to wait an average of 13 months for surgery deteriorated during the waiting period. They improved once they were operated on but did not turn out as well as an early operated group of patients (Part I). Furthermore, patients with delayed treatment had more than twice the 5-year mortality rate (Part II). Of almost 1000 operated patients from the National Quality Register for Hydrocephalus, about 60% stated that they were still improved 2–6 years after the operation. Concomitant cardiovascular disease had only a limited negative effect. Although 1 in 4 had complications with the shunt operation, this did not affect the treatment effect in the long term (sub-work III). iNPH patients had almost twice the mortality rate compared to the normal population and the mortality rate is higher in patients with more severe symptoms. However, no increased mortality was seen in the patients who had the best effect of the shunt operation. Compared with the normal population, it was twice as common for patients with iNPH to die of stroke, while death due to tumor disease was uncommon (Part IV).

The thesis shows that shunt surgery is an effective treatment for iNPH that makes the majority of patients feel better and live longer. Untreated, the disease leads to gradual deterioration. Urgent surgery provides a better treatment result and reduces the risk of premature death. The long-term result is good even in patients with cardiovascular disease, who should also be offered treatment. It is important to inform patients about the risk of complications, even if these do not affect long-term outcomes.

Link to the thesis: <http://hdl.handle.net/2077/63286>