

Integra NPH low flow valve

Overdrainage and frequent reprogramming are common issues with programmable valves after ventriculoperitoneal shunt surgery for idiopathic normal pressure hydrocephalus (iNPH). Flow regulated valves may address these limitations, but data on their efficacy are sparse.

Wetzel et al., from the Center for Neurosurgery, University Hospital of Cologne, Germany, present a single-center experience with flow-regulated valves focusing on overdrainage and efficiency.

Thirty-two patients with iNPH treated with the Integra® NPH Low Flow Valve were prospectively enrolled. Clinical evaluation was performed at baseline, postoperatively as well as 3 and 6 months after surgery. The outcome was assessed by employing the iNPH grading scale and the Mini Mental State Examination (MMSE). Overdrainage was assessed clinically and radiologically by computed tomography.

The mean patient age was 71 years. All patients presented with gait disorder, 29 had cognitive disorder and 25 had urinary incontinence. The mean duration of symptoms was 22.9 months. At 3-month follow-up, 25/31 patients (80.6%) improved on the total iNPH score by at least 5 points ($p < 0.001$). The mean MMSE score increased from 24.5 to 26.1 points ($p = 0.013$). After 6 months, the improvement rates of the iNPH (82.1%) and the MMSE scores (26.8 points) were stable. The rate of clinically significant overdrainage was 3.2%. One patient presented with subdural hygromas that necessitated evacuation. In the remaining patients, clinical and radiological signs of overdrainage were absent.

The use of the Integra® NPH Low Flow Valve leads to a good neurological outcome and has low overdrainage rates without the need for reprogramming. These results are encouraging and justify further investigation of this valve ¹⁾.

¹⁾

Wetzel C, Goertz L, Schulte AP, Goldbrunner R, Krischek B. Minimizing overdrainage with flow-regulated valves - Initial results of a prospective study on idiopathic normal pressure hydrocephalus. Clin Neurol Neurosurg. 2018 Jul 23;173:31-37. doi: 10.1016/j.clineuro.2018.07.017. [Epub ahead of print] PubMed PMID: 30071502.

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