

## Gravity valves for idiopathic normal-pressure hydrocephalus: a prospective study with 60 patients

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### Summary

*Objective.* Are hydrostatic valves superior to conventional differential pressure shunts in patients with normal-pressure hydrocephalus, with regard to the postoperative results of treatment and possible complications?

*Methods.* From September 1997 to January 2002, 60 patients with idiopathic normal-pressure hydrocephalus were treated by surgical implantation of hydrostatic valve at the Unfallkrankenhaus Berlin. In a prospective study, the clinical examination and a CT examination were carried out preoperatively, postoperatively and 1 year after the operation.

*Results.* One year after the operation, the clinical picture was very good for 33% of the patients, good for 33% and satisfactory or poor for 17% each, of the patients. 3 dislocations (5%) of ventricular or abdominal catheters and three valve infections were found as valve-independent. As valve-dependent complications, underdrainage was found in 4 patients (7%) and radiological signs of overdrainage in 2 patients (3%), while 1 patient (1.7%) showed symptomatic overdrainage.

*Conclusion.* According to our experience, hydrostatic Dual-switch valves *Aesculap®* are superior to conventional differential pressure shunts without an additional gravity unit especially with regard to the treatment of patients with idiopathic normal-pressure hydrocephalus, concerning both the postoperative results and the incidence of possible complications. A clinical improvement can be achieved for 83% of such patients.

*Keywords:* Normal-pressure hydrocephalus; idiopathic; outcome; complications; shunt operation; Dual-switch valve; hydrostatic valves.