

Gravitational valves: relevant differences with different technical solutions to counteract hydrostatic pressure

M. Kiefer¹, U. Meier², and R. Eymann¹

¹Saarland University, Medical School, Department of Neurosurgery, Homburg-Saar, Germany

²Unfallkrankenhaus Berlin, Department of Neurosurgery, Berlin, Germany

Summary

Two different technical principles of gravitational valves (G-valves) have been presented: counterbalancer and switcher G-valves. The objective of our prospective study was to look for clinically relevant differences between both.

A total of 54 patients with normal-pressure hydrocephalus (NPH) were treated; 30 patients received an Aesculap-Miethke GA-Valve (GAV; counterbalancer), and in 24 patients an Aesculap-Miethke Dualswitch-Valve (DSV; switcher) was implanted. The opening pressure of the posture-independent valve was 5 cm H₂O in both devices. The outcome was clearly better with the usage of the GAV than with the DSV. The frequency and severity of complications was pronounced in the DSV group.

We recommend the Aesculap-Miethke-GAV valve with a low opening pressure in a posture-independent valve for patients with NPH.

Keywords: Hydrocephalus; normal-pressure hydrocephalus; over-drainage; shunt.