The combination of a programmable valve and a subclavicular anti-gravity device in hydrocephalus patients at high risk for hygromas


**Abstract:**

OBJECTIVES: In order to avoid occurrence of post-operative hygromas in specific hydrocephalus patients being at high risk of overdrainage, a combination of programmable valve and anti-gravity device is widely recommended. We analyzed our series of hydrocephalus patients implanted with such a shunt configuration focusing on complications in relation to over-/underdrainage and neurological outcome. METHODS: In 28 hydrocephalic patients (14 women and 14 men; mean age 65 years, range from 14 to 82 years; 11 normal pressure, 7 post-traumatic, and 4 post-hemorrhagic hydrocephalus), a Codman Medos programmable valve combined with a Miethke shunt assistant (SA) was implanted at the Department of Neurosurgery of the Academic Teaching Hospital Feldkirch. Implantation was performed simultaneously in 20 patients during the primary procedure: in five patients, SA was placed during revision surgery, and in three patients, the patent system was completed by additional implantation of an SA. RESULTS: Subdural hematoma occurred in one out of 20 patients with SA implantation during primary procedure and in two out of eight patients with SA implantation as secondary procedure, respectively. Shunt occlusion occurred in one patient out of the patients with SA implantation during primary procedure, but was seen in three patients with pre-existing shunt without SA. Shunt infection occurred in one case. DISCUSSION: Our results suggest the combination of an adjustable valve and SA as an effective treatment for a specific group of hydrocephalus patients being at high risk for overdrainage.

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