Experiences with a gravity-assisted valve in hydrocephalic children. Clinical article


Abstract:
OBJECT: Over the past decade, a gravity-assisted valve (GAV) has become a standard device in many European pediatric hydrocephalus centers. Because past comparative clinical outcome studies on valve design have not included any GAV, the authors in this trial evaluated the early results of GAV applications in a pediatric population. METHODS: For a minimum of 2 years the authors monitored 169 of 182 hydrocephalic children who received a pediatric GAV at their first CSF shunt insertion (61.5%) or as a substitute for any differential pressure valve (38.5%) at 1 of 7 European pediatric hydrocephalus centers. Outcomes were categorized as valve survival (primary outcome) or shunt survival (secondary outcome). The end point was defined as valve explantation. RESULTS: Within a follow-up period of 2 years, the valve remained functional in 130 (76.9%) of 169 patients. One hundred eight of these patients (63.9%) had an uncomplicated clinical course without any subsequent surgery, and 22 (13%) were submitted to a valve-preserving catheter revision without any further complications during the follow-up period. Thirty-nine patients (23.1%) reached an end point of valve explantation: 13 valve failures from infection (7.7%), 8 (4.7%) from overdrainage, and 18 (10.6%) from underdrainage. CONCLUSIONS: Compared with nongravitational shunt designs, a GAV does not substantially affect the early complication rate. Valve-preserving shunt revisions do not increase the risk of subsequent valve failure and therefore should not be defined as an end point in studies on valve design. A significant impact of any well-established valve design on the early complication rate in shunt surgery is not supported by any current data; therefore, this correlation should be dismissed. As overdrainage-related complications have been shown to occur late, the presumed advantages of a pediatric GAV remain to be shown in a long-term study.

ISBN/1933-0707 (Print)
1933-0707 (Linking)