First-line management of chronic subdural hematoma with the subdural evacuating port system: institutional experience and predictors of outcomes

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Disclosures

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Introduction

Chronic subdural hematoma (cSDH) is a common condition that disproportionately affects older patients. Given the greater risks of general anesthesia in this population, interest has turned towards less invasive surgical approaches such as the subdural evacuating port system (SEPS; Medtronic, Inc., Minneapolis, MN). The published outcomes following SEPS placement are favorable, with high rates of radiographic and clinical improvement as well as low rates of adverse effects. In this study, we analyzed our institution's experience with the SEPS technique in order to further delineate risk factors for unsatisfactory outcomes, greater length of stay (LOS) and non-routine hospital discharge.
Methods

Using a prospectively maintained institutional database, we retrospectively identified all patients who presented with cSDH and received first line therapy with SEPS. Pre- and post-operative clinical and radiographic data was obtained from the electronic health record. Outcomes included success or failure, Modified Rankin Scale (mRS) at discharge, length of stay (LOS), and discharge disposition. Success was defined clinically as improvement in the patient's chief presenting symptom or neurologic deficit. The outcome was considered unsuccessful if the patient did not experience any such improvement or required repeat SEPS placement, surgical intervention in the operating room, or re-admission with return of the same symptoms and radiographic worsening within 30 days. Disposition was recorded as home/self care or any non-routine hospital discharge (such as a skilled nursing facility).
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Results

A total of 126 patients met the inclusion criteria. 96 (76%) patients had a successful outcome, and 30 (24%) were unsuccessful. Of those with unsuccessful outcomes, 15 required additional SEPS placement, 12 did not experience improvement in their presenting symptom(s) or experienced recurrence within 30 days, and three underwent craniotomy. 81 (64.3%) patients were discharged to home or self-care, 44 (34.9%) had a non-routine discharge, and one expired prior to discharge due to complications associated with his comorbidities. The median LOS was four days (range: 1 – 42).
None of the pre-procedural variables were associated with the likelihood of a successful outcome. Increasing age was associated with an increasing likelihood of a non-routine hospital discharge ($p = 0.003$). Lower presenting GCS was associated with an increasing likelihood of a longer hospital stay ($p = 0.005$). The mRS at time of discharge were distributed as follows: 0 – 25 (20%); 1 – 41 (33%); 2 – 22 (17%); 3 – 19 (15%); 4 – 15 (12%); 5 – 3 (2%); 6 – 1 (0.8%). Thus, 88 (70%) patients had favorable outcomes (mRS 0 – 2), and 38 (30%) had unfavorable outcomes (mRS 3 – 6). Greater hematoma thickness was associated with a lower likelihood of having a favorable outcome ($p = 0.003$).
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Discussion

Our success rate of 76% is comparable to the reported rates in the rest of the literature on SEPS drainage, which range between 73 – 83%. Successful interventions led to durable results, with the majority of these patients continuing to have symptomatic improvement at outpatient follow-up. Our results provide further evidence that the SEPS technique is safe and effective. In addition, we suggest that favorable outcomes can be obtained even in the presence of mixed density collections and septations.
Summary Points

• The SEPS technique is a safe and effective option in the management of cSDH
• Several radiographic parameters that are theorized to be associated with failure of this treatment did not show any such correlation in our cohort