Cleveland Clinic Innovations

AMBULATORY CSF DRAINAGE DEVICE

Sean Nagel, MD

PRODUCT

A wearable cerebrospinal fluid (CSF) drainage system.

INDICATION

Patients with suspected normal pressure hydrocephalus (NPH)

VALUE PROPOSITION

- Reduces nurse time from continuous monitoring.
- Improved mobility of patients.
- Allows patients to remain ambulatory at home instead of inpatient stay with lumbar drain.

DEVELOPMENT STAGE

- Fully Functional Prototype/MVP

INTELLECTUAL PROPERTY

2 US patent applications.

Pending applications in EP, Australia, Canada, Japan.

1 pending PCT application

CONTACT INFORMATION

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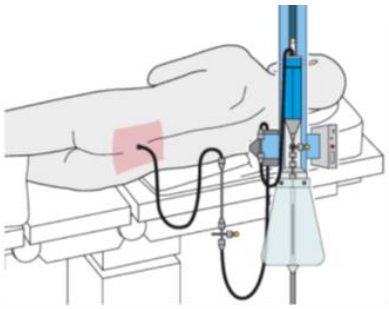
PROBLEM

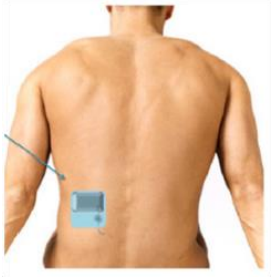
An estimated 900,000 older Americans are believed to have NPH, yet only about 40,000 undergo lumbar drain trials. Standard of care requires a lumbar puncture followed by a costly inpatient stay utilizing nursing staff to monitor CSF drain levels. In addition, NPH patients are commonly misdiagnosed, which the Hydrocephalus Association suggests costs Medicare $37 million annually.

SOLUTION

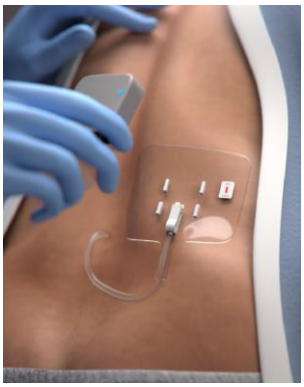
A wearable CSF drainage system can eliminate long, expensive and uncomfortable lumbar drain trials. Unlike the conventional test methods, the proposed product allows the neurological team to assess response to a shunt through an extended drain trial. The wearable product provides ambulatory freedom to the patient, which will minimize healthcare resources, and ultimately enable longer trials conducted at home, allowing a more accurate assessment of patient response to drainage. These improvements should increase the clinical and patient acceptance of drain trials as well as the number of patients directed to the appropriate curative therapy (i.e. surgical shunt placement).



Conventional test method



Proposed product concept



Adhesive bracket attached to lumbar region.

The device is mounted on the bracket and the canister installed and then replaced as needed.