**Use of Novel Automated Active Irrigation with Drainage versus Passive Drainage Alone for Chronic Subdural Hematoma – A Propensity Score-Matched Comparative Study with Volumetric Analysis**

**Supplemental Digital Content 1. Supplemental Methods**

***Procedural Details***

Patients are monitored closely in the intensive care unit with serial neurological examinations. Nursing staff monitor the input and output of the IRRAflow device (IRRAS, San Diego CA) and calculate the net output. This is defined as the amount of output in 1 hour minus the input for that hour. Positive net output indicates that more fluid was removed from the subdural space than entered it during that hour. If this number is negative, it indicates that there is a net gain of fluid into the subdural space. When this occurs, an alarm notifies the neurosurgical staff and changes to the device settings are made until the net output becomes positive again. As our experience with the device increased, settings were not changed as often in these circumstances as it was noted that the device would “catch-up” and promote egress of the accumulated fluid without modification to the settings. An additional layer of protection is the built-in ICP monitoring capability of the IRRAflow catheter. The high and low ICP alarms can be customized, and irrigation will cease outside the set range. Again, neurosurgical staff members are alerted when these changes occur, as is our protocol with standard external ventricular drains. In our experience, the ICPs transduced when the catheter is introduced into the subdural space are not accurate. Therefore, we did not record them for this study. The ICPs are instead used to create thresholds for the irrigation setting of the device to ensure that fluid has not accumulated within the subdural space. Drains (both passive and IRRAflow) were removed once serial NCCTs demonstrated complete or near-complete hematoma resolution.

Also in our experience, the IRRAflow device does not impede physical activities that can occur during hospitalization, such as physical therapy. The catheter can be sterilely disconnected from the device with the ends capped to allow patient ambulation. Patients are also able to ambulate with the device connected. The drainage receptacle and electronic control panel are connected to a standard intravenous line pole with wheels, allowing patients to walk much like if they were receiving intravenous fluids.