ONLINE SUPPLEMENT

Minimally Invasive Surgery plus rt-PA for Intracerebral Hemorrhage Evacuation (MISTIE) Decreases Perihematomal Edema

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Inclusion criteria:

1 Age 18 - 80
2 GCS ≤ 14 or NIHSS ≥ 6
3 Spontaneous supratentorial ICH ≥ 20cc
4 Stable clot (increase no greater than 5cc) at second CT scan done six hours later
5 First dose given within 54 hrs. of the initial CT scan
6 Symptoms less than 12 hours prior to diagnostic CT scan
7 SBP < 200 mmHg or MAP <130 mmHg over 6 hours
8 Historical Rankin score of 0 or 1
9 Negative pregnancy test

Exclusion criteria:

1 Infratentorial hemorrhage
2 Platelet count < 100,000, INR > 1.3, or an elevated PT or APTT
3 Pre-existing irreversible coagulopathy
4 Any concurrent serious illnesses that would interfere with the safety assessments
5 Patients with a mechanical cardiac valve
6 Patients with unstable mass or evolving intracranial compartment syndrome
7 Ruptured aneurysm, AVM, vascular anomaly, Moyamoya disease
8 Irreversibly impaired brainstem function, GCS less than or equal to 4
9 Obstructive intraventricular hemorrhage requiring external ventricular drainage
10 Internal bleeding, involving retroperitoneal sites, or the gastrointestinal, genitourinary, or respiratory tracts
11 Superficial or surface bleeding, observed mainly at vascular puncture and access sites or site of recent surgical intervention
12 Known risk for embolization, including history of left heart thrombus, mitral stenosis with atrial fibrillation, acute pericarditis, or subacute bacterial endocarditis
13 In the investigator's opinion, the patient is unstable and would benefit from a specific intervention rather than supportive care or MIS + tPA removal of the ICH
14 Prior enrollment in the study
15 Any other condition that the investigator believes would pose a significant hazard to the subject if the investigational therapy were initiated
16 Participation in another simultaneous trial of ICH treatment

Operative technique

For enrolled patients randomized to surgery, a 14-French cannula was stereotactically placed into the center of the parenchymal clot two-thirds the length of the long axis, and within the middle one-third of the clot. Directly after cannula placement, an initial aspiration of clot was conducted using a 10 cc syringe until the surgeon notes resistance to free-hand suction. Following completion of hematoma aspiration, a soft ventriculostomy catheter was then passed through the rigid cannula and the rigid cannula was removed leaving the soft catheter in the center of the residual hematoma. A postoperative CT scan was taken to confirm accurate placement and check for any instance of new bleeding.