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February 20-21, 2017 Houston, TX Minimally Invasive Hematoma Evacuation for Intracerebral Hemorrhage: The Mount Sinai ICH Experience and Evaluation of the Stereotactic iCh Underwater Blood Aspiration (SCUBA) Surgical Method

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Introduction

- Intracerebral hemorrhage (ICH) is a devastating form of stroke that lacks an effective medical therapy
- We sought to evaluate the short-term hospitalization outcomes of 15 patients who underwent minimally invasive ICH evacuation
- Determine the efficacy of the recently developed SCUBA technique

Methods

- We conducted a retrospective review of 15 consecutive patients with ICH treated at the Mount Sinai Health System
- All patients underwent minimally invasive evacuation with the Apollo device
- Eleven patients underwent evacuation prior to the development of the SCUBA technique
- Four patients received treatment with SCUBA
- Short-term hospitalization outcome measures were collected and are displayed in Table 1
- Mann-Whitney U tests were performed to compare evacuation techniques and outcome measures

Results

- Of the total patient population (n=15), 53% (n=8) had an improvement in their NIHSS score from admission to discharge with an average improvement of 1.1 points
- Patients who received treatment Pre-SCUBA surgical method, 27% (n=3) had an improvement in their NIHSS score
- Patients who received treatment using the SCUBA method, 100% (n=4) had an improvement in their NIHSS score with an average improvement of 11.8 points
- Patients who received the SCUBA method were more likely to improve clinically (p=0.019)
- Patients who received the SCUBA method spent less time in the NSICU (p=0.03)

Table 1				
	All (15)	Pre-SCUBA (11)	SCUBA (4)	p-value
Age	70.1 (16.7)	68.4 (15.2)	75.0 (19.4)	0.9
Admission NIHSS	19.9 (5.6)	19.3 (5.9)	21.5 (4.2)	0.47
Admission Volume	53.2 (26.5)	57.8 (27.5)	40.8 (18.2)	0.66
NSICU LOS	11.4 (5.6)	13.3 (5.3)	6.3 (2.3)	0.03*
LOS	17.9 (8.6)	20.0 (8.7)	12.3 (4.7)	0.08
% Evacuated	79.0 (19.4)	75.0 (21.3)	89.7 (3.0)	0.3
Discharge NIHSS	18.7 (9.5)	22.0 (8.6)	9.8 (4.7)	0.05*
Delta NIHSS	-1.1 (10.2)	2.7 (9.2)	-11.8 (1.8)	0.02*

Surgical outcomes of 15 patients receiving minimally invasive hematoma evacuation

Figure 1





Pre-SCUBA vs. SCUBA

Comparison of change in NIHSS Scores between Pre-SCUBA and SCUBA patients

Learning Objectives

- Understand the importance of developing new treatment methods and surgical techniques for intracerebral hemorrhage patients
- Discuss, in small groups, the important outcome measures for patients suffering from intracerebral hemorrhage and the current efficacy of care available to these patients
- Identify an effective treatment for patients suffering from intracerebral hemorrhage.

Conclusions

- Our findings suggest that minimally invasive hematoma evacuation with the SCUBA technique improves short-term patient outcomes compared with use of the Apollo device without SCUBA
- More work is needed to determine long term outcomes in patients who receive the SCUBA surgical method