Minimally Invasive Surgical ICH Evacuation: Assessing The Use Of The Angiosuite

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Disclosure

Christopher Kellner reports research grant support from Integra, Penumbra, Siemens, Cerebrotech, Minnetronix and reports ownership interest in Metis Innovative

Introduction

- Intracerebral hemorrhage (ICH) occurs in the US with an incidence of 26 per 100,000 person-years resulting in approximately 70,000 cases per year.
- ICH is a devastating disease with an alarmly high mortality rate with only 20% of patients achieving functional independence 6 months following insult.
- Minimally invasive surgical (MIS) ICH evacuation is under investigation in clinical trials, with debate over where the operation should be performed.
- Conebeam CT is used in the angiosuite to determine if the surgical goal of evacuating at least 70%

In this analysis we discuss the benefits and limitations of MIS-ICH evacuation when performed within the angiosuite.
Methods

Minimally invasive ICH evacuation was performed in 106 patients presenting with supratentorial spontaneous ICH between December of 2015 and November of 2018.

Intraoperative imaging details were obtained retrospectively from the electronic medical record.

**Descriptive statistics, univariate, and multivariate analyses** were performed. The dependent variable was the occurrence of more than one conebeam CT performed during the procedure implying that surgical goals were not met at the time of the first conebeam CT so the procedure was continued.
Results

Of the 106 cases assessed:

100% utilized equipment that is specific to the angiography suite

15.0% received more than one intraoperative conebeam CT
Results

Univariate analysis indicated that pre-evacuation volume was a significant (p-value=0.0172) predictor of the need for an intraoperative DynaCT.

The odds of a surgeon utilizing a second intraoperative CT is 3.9% higher for every one mL increase in preoperative hematoma volume.

Multivariate regression was not performed because only one factor correlated with the use of multiple conebeam CTs during the procedure.
Discussion

- The primary benefit of the angiosuite is the immediate availability of fluoroscopy and conebeam CT equipment.
- Immediate access to angiographic equipment permits the ability to rule out a vascular lesion if the CT angiogram is not clear and conebeam CT on the operating mtable enables surgeons to perform intraoperative imaging during the procedure.
- Further analysis should be conducted to determine which procedures within the angiosuite may benefit specific better clinical outcomes.
Summary Points

❖ Where MIS-ICH evacuation surgery should be performed will be determined by a room availability and ease of use of the equipment.

❖ An analysis of 106 MIS-ICH evacuations performed in an Siemens angiosuite showed a majority of operations utilize equipment unique to the angiosuite compared to the operating room

❖ Use of intraoperative CT is statistically predicted by preoperative hematoma size

❖ Future studies should assess the difference between MIS-ICH evacuation in the angiosuite and the operating room