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Endoscopic Intracerebral Hemorrhage Evacuation: Initial Experience at a Dedicated ICH Center

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Introduction

Large-scale randomized clinical trials have suggested that surgical management of intracerebral hemorrhage (ICH) with conventional craniotomy and evacuation does not confer a clear benefit over conservative medical therapy. However, minimally invasive techniques, including endoscopic ICH evacuation, have accumulated a growing body of supporting evidence that suggests improved long-term outcomes and decreased hospital length of stay. Here we present our initial experience with endoscopic ICH evacuation and describe functional outcomes at 180 days.

Methods

Patients included in the study presented to the Mount Sinai Health System with ICH from December 2015 to October 2017. Patients were deemed eligible for endoscopic ICH evacuation with the Apollo System (Penumbra) at a an ICH center of excellence if several inclusion criteria were met, including NIHSS = 6 and ICH volume = 20cc. Patients were excluded from the study if there was any evidence of an underlying unsecured vascular lesion, emergent need for surgical decompression, infratentorial hemorrhage location, or hematoma extension into the midbrain. Clinical and radiographic variables were collected prospectively and analyzed retrospectively.

Results

Sixty-one patients met the criteria for endoscopic ICH evacuation. Average admission National Institutes of Health Stroke Scale (NIHSS) was 18.9 (standard deviation 6.0), average hematoma size prior to evacuation was 46.0cc (SD 30.6cc), and 38% of hemorrhages were located <1cm from the cortical surface. Average postoperative hematoma volume was 5.4cc (SD 8.0cc) resulting in an average evacuation rate of 87%. Early postoperative rebleeding occurred in one patient. Twenty patients (32.8%) underwent tracheostomy and 31 (50.8%) underwent percutaneous endoscopic gastrostomy tube (PEG) placement prior to discharge. Average length of stay in the neurosurgical intensive care unit was 11.3 days (SD 8.4) and average hospital stay was 21.8 days (SD 17.5). Average improvement in NIHSS from admission to discharge was by 4.3 points (SD 8.0). Modified Rankin Score (mRS) was assessed at 180

Conclusions

Endoscopic ICH evacuation with the Apollo System appears to be safe and effective. Our results compare favorably with those of recent randomized trials.

Learning Objectives

By the conclusion of this session, participants will have 1) gained a general understanding of the background for endoscopic ICH evacuation, 2) been provided with insights into our institution's experience creating a comprehensive ICH program at one of our hospitals, and 3) have learned about our initial results performing endoscopic ICH evacuation.