

Portable, bedside, low-field magnetic resonance imaging for evaluation of intracerebral hemorrhage.

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Study

Prospective study, 0.064 T pMRI exams on 94 patients in 144 exams (56 ICH, 48 acute ischemic stroke, 40 health controls). The study reports the use of a low-field (0.064T), portable MRI (pMRI) system in critically ill patients presenting with intracerebral hemorrhage (ICH). The primary objective was to demonstrate the ability to deploy pMRI neuroimaging at the hospital bedside and provide an initial evaluation to detect ICH. The study reports on the sensitivity and specificity of ICH detection and the accuracy of ICH localization using Swoop, portable MRI. Additionally, the study explores the association between portable MRI-derived ICH characteristics and clinical outcomes.

Highlights from Discussion Section

"We report the validation of portable MRI (pMRI) in evaluating intracerebral hemorrhage (ICH). These results demonstrate the successful deployment of a low-field pMRI device to the bedside of critically ill patients with ICH. With this approach, we obtained neuroimaging

results that enabled detection and characterization of ICH. Our observation that ICH volume measured on pMRI is associated with both stroke severity and patient outcome further validates this approach as ICH volume is a well-established predictor of outcome⁴⁶. These results suggest that pMRI-based neuroimaging assessments are a point-of-care solution that could be useful in a broad range of clinical settings for diagnosis and evaluation."

Relevance of Study

Prospective study of 94 patients from two hospitals. Image review by several blinded raters with a range of experience supports the generalizability of the clinical interpretation. Demonstrated an established relationship between pMRI-ascertained ICH volume with cognitive impairment. Patient outcomes provide additional support of pMRI as a bedside neuroimaging solution. Table 2 shows a >50% decrease in the time it took to prepare the patient, scan the patient and return the patient to their room (67 mins vs. 30 mins).