

Point-of-Care Brain MRI: Preliminary Results from a Single-Center Retrospective Study

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Study

This single-center retrospective study evaluated the impact of Point-of-Care™ MRI (POC MRI) in the ED and ICU settings. Turnaround times (TATs) were calculated for 36 POC MRI exams (n=13 in the ED and n=23 in the ICU) and compared to conventional MRI exams. Researchers also compared reports from POC MRI and conventional imaging (MR or CT).

Results

“Of 638 noncontrast brain MRI examinations, 36 POC MRI examinations were performed in 35 patients (median age, 66 years [IQR, 57–77 years]; 21 women), with one patient undergoing two POC MRI examinations. Of the 36 POC MRI examinations, 13 (36%) occurred in the ED and 23 (64%) in the ICU. There were 12 of 36 (33%) POC MRI examinations interpreted as negative, 14 of 36 (39%) with clinically significant imaging findings, and 10 of 36 (28%) deemed nondiagnostic for reasons such as patient motion. Of 23 diagnostic POC MRI examinations with comparison CT available, three (13%) demonstrated acute infarctions not apparent on CT scans. Of seven diagnostic POC MRI examinations with subsequent fixed MRI examinations,

two (29%) demonstrated missed versus interval subcentimeter infarctions, while the remaining demonstrated no change. The median turnaround time of POC MRI was 3.4 hours in the ED and 5.3 hours in the ICU.”

Conclusion

“Point-of-care (POC) MRI was performed rapidly in the emergency department and intensive care unit. A few POC MRI examinations demonstrated acute infarctions not apparent at standard-of-care CT examinations.”

Relevance of the Study

TATs were significantly shorter for POC MRI in the ICU compared to conventional MRI (5.3 vs. 11.7 hours, respectively; $p < 0.01$). TATs for both types of MRI were similar in the ED (3.4 vs. 3.7 hours, respectively). Overall, POC MR findings corresponded with CT, but three cases demonstrated findings of acute infarction on POC MRI, which were not apparent in comparison CT. Overall, POC MR exams corresponded with high-field MRI, except for two cases where it was unclear whether the punctate acute infarcts were new or missed.