MR enterography as effective as CT in diagnosing Crohn's disease, reduces radiation exposure

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A new study from Rhode Island Hospital has found that MR enterography (MRE) without the use of an anti-peristaltic agent were as reliable as CT enterography (CTE) in determining the presence of Crohn's disease. Additionally, MRE reduces the patient's exposure to ionizing radiation. The study is now published online in advance of print in the *European Journal of Radiology*.

Lead author David J. Grand, M.D., director of the Body MRI program at Rhode Island Hospital, found that MR enterography without anti-peristaltic agents results in high diagnostic confidence for the presence or absence of Crohn's disease when compared to CT enterography. To limit exposure to ionizing radiation in young patients, MR enterography may be considered a first-line study for the evaluation of known or suspected Crohn's disease.

"This is an important discovery in the diagnostic process for Crohn's disease," said Grand. "This information will help us to develop safer approaches toward testing, helping to lower patients' exposure to radiation, while still maintaining the integrity of diagnosis."

The study included 26 patients to be tested for known or suspected Crohn's disease. The patients underwent CTE immediately followed by MRE without the use of an anti-peristaltic agent. Two fellowship-trained abdominal imagers evaluated each study on a 10-point scale for exam

quality, level of diagnostic confidence and presence of Crohn's disease. The CTE and MRE images were reviewed in random order with at least two weeks separating interpretation of the test results of a single patient.

While the quality of the MREs was ranked slightly lower than the quality of the CTEs, both tests were judged with similarly high rankings for level of confidence in interpretation.

Crohn's disease, a form of imflammatory bowel disease (IBD), is a chronic, relapsing, auto-immune disorder that may affect any portion of the gastrointestinal tract, most commonly the terminal ileum. The incidence of IBD has increased 31 percent in the U.S. since 1991. Cross-sectional imaging is currently a mainstay of evaluation of patients with Crohn's disease due to its ability to assess the entire bowel and extra-luminal complications including fistula and abscess. Recently, however, MRE has demonstrated excellent efficacy both in detection of Crohn's disease as well as in differentiation of active from chronic small bowel changes.

While CTE has proven to be an effective tool in diagnosing Crohn's disease, the radiation dose the patient receives is up to five times higher than that of small-bowel follow through, the test it has largely replaced. In one population-based study, diagnostic imaging exams exposed the majority of Crohn's patients to an additional annual radiation does equal to the annual background radiation in the U.S., while a subset of patients received up to 11 times this additional dosage.

MRE can eliminate ionizing radiation exposure in the population of patients who often present while young and undergo multiple imaging exams throughout their lives.

Additionally, all published literature to date has used a pharmacologic anti-peristaltic agent to minimize motion artifacts. While the agents may

improve subjective image quality, their use has not been shown to be diagnostically necessary and administration complicates exam protocol and increases expense. This study demonstrates that the anti-peristaltic agents may not be necessary, and suggests a simplified protocol of MRE which maintains diagnostic yield while decreasing complexity and expense.

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