

# Diagnostic techniques help IBD patients avoid ionizing radiation exposure

October 18 2010

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At the American College of Gastroenterology's (ACG) 75th Annual Scientific meeting in San Antonio, Texas, several studies of the effectiveness of non-X-ray techniques to evaluate Crohn's disease revealed that diagnostic strategies such as capsule endoscopy (CE) and magnetic resonance enteroscopy (MRE) are useful in managing patients with inflammatory bowel disease (IBD) and avoiding ionizing radiation.

## IBD Patients Exposed to Significant Ionizing Radiation

Radiographic imaging is an important tool for diagnosis and management of IBD. In the study, "Effect of Age, Gender, and Ethnicity on Radiation Exposure among a Multi-Ethnic IBD Population of Low Socioeconomic Status," researcher Jason Hou, M.D. and colleagues from Baylor College of Medicine, noted a lack of data quantifying radiation exposure in IBD patients. Dr. Hou and his team conducted a retrospective analysis of 287 patients in Harris County Hospital District in Houston, Texas to compare the effect age, gender and ethnicity on [ionizing radiation](#) exposure among adults with IBD in a county hospital with a multi-ethnic population.

The investigators found that patients with IBD treated at a county hospital were exposed to a significant amount of ionizing radiation. The mean total radiation exposure was 35.7 millisieverts (mSv) per patient. In the Harris County study, patients with Crohn's disease received over

1.5 times the radiation dose as patients with ulcerative colitis. While overall there was no difference in radiation exposure between men and women, there was a trend among male patients younger than 35 towards increased [radiation exposure](#) compared to females. In the study, 21 percent of patients under 35 received greater than 75 mSv of radiation. In comparison, a full-body CT scan measures an estimated 2 millisieverts to 16 millisieverts. A mammogram measures about .4 millisieverts. Americans get small amounts of ionizing radiation each year from natural sources, according to the U.S. Food and Drug Administration (FDA [www.fda.gov/Radiation-Em.../action/ucm199994.htm](http://www.fda.gov/Radiation-Em.../action/ucm199994.htm) )

## **Magnetic Resonance Enteroscopy a Clinical Useful Tool in Crohn's Disease**

Magnetic resonance enteroscopy (MRE) to evaluate Crohn's disease was the subject of two different studies presented at the ACG 2010 Annual Scientific Meeting in San Antonio, Texas. Researchers at the University of Wisconsin developed a clinical efficacy measure for the usefulness of MRE in the care of patients with Crohn's disease in their study, "Clinical Efficacy of MR Enterography in the Diagnosis and Management of Crohn's Disease."

"Assessing Crohn's disease activity in the small bowel is challenging as direct visualization is difficult and traditional radiographic studies can result in large cumulative radiation disease," according to Siobhan Byrne, M.D. and Helen Fasanya-Uptagraft, M.D. MR enteroscopy is a diagnostic technique performed without ionizing radiation. Researchers looked at the clinical utility of MRE in Crohn's disease in a study that included 50 MREs and developed a clinical efficacy score which attempted to correlate MRE findings and clinical activity and evaluate the impact of the MRE on management of Crohn's patients.

Their findings revealed that more than half of clinically severe cases had higher MRE scores, and 75 percent had definite disease activity. In cases judged mild to moderate by symptoms reported by patients, MRE was unlikely to show active disease, with 68 percent having low clinical efficacy scores.

“MRE had the greatest impact when it was employed to differentiate active Crohn’s disease from other non-functional GI diagnoses,” said Dr. Byrne. Because MRE revealed no active disease in those patients reporting mild to moderate symptoms, MRE prevented escalation of therapy and led to the work-up of alternate diagnoses. “Overall, MRE was a useful tool in this clinical setting, leading the management change in 86 percent of patients with Crohn’s without the use of ionizing radiation,” concluded the investigators.

## **Sensitivity and Specificity of MRE Compares Favorably to Endoscopy and Pathology**

In another assessment of MR enteroscopy, “Efficacy of MR Enterography for Evaluation of Known or Suspected Crohn’s Disease,” Samir A. Shah, M.D., FACG and Adam Harris, M.D. of Brown University retrospectively evaluated the sensitivity and specificity of MRE compared to traditional endoscopy and pathology. Their aim was to analyze the efficacy of this test in evaluating Crohn’s disease among 310 patients who also had endoscopy and laboratory studies within 90 days of the MRE. The investigators found that in this patient group the overall sensitivity and specificity of MRE (using endoscopy as a gold standard) were 84 percent and 76 percent respectively. Results improved as the time between the MRE and endoscopy decreased. In 162 patients who underwent endoscopy within 30 days of MRE, the sensitivity remained 84 percent, but the specificity increases to 82 percent.

“MRE highly correlates with endoscopic and histological assessment for the evaluation of known or suspected Crohn’s disease non-invasively and without the exposure to ionizing radiation of CT enterography,” explained Dr. Shah.

## **Capsule Endoscopy Impacts Management of IBD**

In a study at the University of North Carolina Hospitals, “The Impact of Capsule Endoscopy on Management of IBD: A Single Tertiary Care Center Experience,” Dr. Millie Long and colleagues conducted a retrospective cohort study of capsule endoscopy performed among patients previously diagnosed with IBD. They analyzed the use of IBD-specific medications, surgeries and imaging studies within the three months prior to and three months following the capsule endoscopy examination. “We aimed to define results of capsule endoscopy in symptomatic Crohn’s disease, indeterminate colitis and pouchitis and to determine whether use of the capsule was associated with management changes in these different subtypes of [inflammatory bowel disease](#),” explained Dr. Long.

Among Crohn’s patients undergoing capsule endoscopy, overall 61 percent had a change in medication in the three months after the exam, with almost 40 percent initiating a new IBD medication, and about 13 percent underwent surgery. In comparing patients in whom capsule exam found evidence of severe disease to those with minimal or no findings, the percentage of patients with changes in the management of their disease was even larger: 73 percent of those with severe findings changed medication, 58 percent added medications, and 21 percent had surgeries. “We found that [capsule endoscopy](#) resulted in management changes in the majority of cases, regardless of the findings or the subtype of IBD,” explained Dr. Long.

Provided by American College of Gastroenterology

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