

Patients with digestive disorders may receive high levels of X-ray radiation

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Patients with inflammatory bowel disease (IBD) and other gastrointestinal (GI) disorders may be exposed to significant doses of diagnostic radiation, according to a new study in *Clinical Gastroenterology and Hepatology*, the official journal of the American Gastroenterological Association.

"Our results show that significant increases in radiation exposure in the last decade have paralleled the increased use of computed tomography imaging," said Alan N. Desmond, MB, BMedSc, MRCPI, of the Cork University Hospital, Ireland, and lead author of this study. "While cumulative exposure is highest in [patients](#) with Crohn's disease, high exposure may also occur in patients with other gastrointestinal disorders."

Researchers analyzed data from 2,590 patients who were diagnosed with GI disorders at a tertiary gastroenterology center from January 1999 to January 2009. [Diagnostic imaging](#) was performed on 57 percent of the patients. Results showed that higher levels of annual and total diagnostic radiation exposure were associated with IBD and other GI disorders, including benign conditions of the small bowel (such as celiac disease and bacterial overgrowth) and liver (such as [fatty liver disease](#) and benign liver cysts). Higher total exposures were also seen in a small number of young patients with functional GI conditions (such as [irritable bowel syndrome](#) and unexplained abdominal pain syndrome).

The clinical benefits of widely available diagnostic imaging of the GI

tract are not in doubt. This is particularly true for patients with disorders such as Crohn's disease, who often require abdominal imaging to determine the extent of their disease and detect complications. Access to high-quality imaging facilities and the advent of rapid-acquisition computed tomography (CT) have made [CT imaging](#) of the GI tract valuable and widely used. However, because CT uses higher levels of radiation than other imaging options, more widespread use has led to increases in the amount of radiation to which patients are exposed. This is a cause for concern, because radiation exposure might be associated with increased lifetime risk of cancer. These risks may be particularly relevant to younger patients.

"Most patients with [gastrointestinal disorders](#) had diagnostic X-rays performed at some point during their work-up, with older age and longer duration of follow-up both increasing the chances of having multiple X-rays performed," added Dr. Desmond. "In this study, we were particularly interested in patients whose cumulative radiation exposures were in the top ten percent for the entire population. The majority of these patients were being investigated for [inflammatory bowel disease](#). The most concerning finding might be that more than half of the patients in this higher exposure group were younger than 35 years of age."

Alternative, radiation-free imaging options, including ultrasound, capsule endoscopy and magnetic resonance imaging, are available. However, evidence-based guidelines on the use of diagnostic imaging in patients with GI disorders, especially those that reduce [radiation exposure](#), are still needed.

The authors emphasize that diagnostic X-ray examinations, including CT, are valuable diagnostic tests that allow speedy and accurate diagnosis of many conditions and pose little or no risk to the majority of patients. The authors' findings have led them to perform further research showing that new, low-radiation techniques for performing CT scans are

particularly useful in patients with Crohn's disease. They will publish this new research in the near future.

Provided by American Gastroenterological Association

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