New Low Dose CT Protocols for Stone Detection may Hold Key to Reducing Cancer Risk from Radiation

Researchers from the department of radiology and urology at Loma Linda University Medical Center (LLUMC) are working to reduce the radiation exposure associated with CT imaging. A study featured on the cover of December’s Journal of Urology, may hold a key to reducing the risk of cancer from CT imaging.

Loma Linda, CA (Vocus) January 8, 2010 -- Researchers from the department of radiology and urology at Loma Linda University Medical Center (LLUMC) are working to reduce the radiation exposure associated with CT imaging. A study featured on the cover of December’s Journal of Urology, may hold a key to reducing the risk of cancer from CT imaging.

“In this paper we were able to use an experimental protocol to reduce the radiation exposure for CT imaging by 95% without decreasing the sensitivity or specificity for detection of ureteral stones,” said Dr. Forrest Jellison, a resident at LLUMC and one of the authors of the study.

Recently, evidence has mounted suggesting that the radiation associated with medical imaging may place patients at risk for malignancy and death. In an article recently published in the Archives of Internal Medicine, it was predicted that of the 72 million patients receiving a CT in the United States in 2007, approximately 29,000 would ultimately develop cancer from this radiation exposure. Half of these cancer patients could ultimately die.

“Our low dose CT study is unique in its prospective design. By using cadavers we were able to compare CT imaging at many different radiation levels in a way that would have been unethical in a patient,” said Dr. Duane Baldwin, associate professor of urology at Loma Linda University and lead author of the paper. “The lowest dose protocol reduced the radiation level by 95% without altering the detection of stones.”

Kidney stone patients represent a population at particularly high risk from radiation exposure. These patients are often young and frequently develop recurrent stones meaning that they will be subjected to repeat CT imaging. The radiation exposure from a CT scan is significant. It is estimated that 3 CT scans would be equivalent to the radiation exposure just 3 km away from the detonation of the atomic bombs in Hiroshima and Nagasaki. It is also estimated that 1 in 1000 patients getting a CT may ultimately die of fatal cancer caused by the CT scan.

“One of the best things about these low dose CT protocols is that they are available right now. We have implemented these low dose protocols for selected patients with stones and flank pain, and are expanding their use to other patient populations,” said Dr. Jason Smith, a radiologist at LLUMC and coauthor of the paper.

“This technique enables clinicians to reduce radiation exposure in patients with specific conditions by changing the settings on current CT scanners. This low dose technique has significant potential to protect patients from the harms of unnecessary radiation,” concluded Dr. Herbert Ruckle, Chair of the Department of Urology at LLUMC.

Please contact Katie Ellis at kaellis@llu.edu for a copy of the journal article.
About Loma Linda University Medical Center (LLUMC)
Loma Linda University Medical Center’s comprehensive health system includes the LLU Children’s Hospital, East Campus, Behavioral Medicine Center, Heart and Surgical Hospital, and physician clinics. LLUMC is the largest and only Level 1 trauma Center in the San Bernardino, Riverside, Inyo, and Mono Counties, which encompass over 40,000 square miles of land in southern California. With a total of 974 beds, the Loma Linda University health system includes the only children’s hospital in the region. Loma Linda University Medical Center averages over 30,000 inpatient discharges and roughly 500,000 outpatient visits a year.

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