Medical Xpress

Iterative reconstruction plus longitudinal dose modulation reduces radiation dose for abdominal CT and save lives

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Radiation dose reduction has moved to the forefront of importance in medical imaging with new techniques being developed in an effort to bring doses down as low as possible. What difference can these techniques make? Researchers at Indiana University School of Medicine aimed to find out.

"We conducted a study to quantify dose reduction, comparing two years' worth of data and 11,458 abdomen and pelvic CT exams," said Dr. Jonas Rydberg, lead author of the study. Data on 5,707 consecutive CT abdomen and pelvis exams without iterative reconstruction or longitudinal dose modulation was collected. The data was compared to 5,750 exams in which both techniques were applied. "We saw a 23% total radiation dose reduction in the second group," said Dr. Rydberg. "If you consider that there are about 20 million abdominal CT examinations done each year in the U.S. a 23% dose reduction translates into between 1,000 and 3,000 fewer radiation induced cancers each year, if we use the same assumptions used for survivors of Hiroshima and Nagasaki" he said.

Iterative reconstruction is a mathematical process that is an integral part of the CT scanner that allows for good quality images with lower radiation doses, said Dr. Rydberg. Longitudinal dose modulation changes the radiation dose based on the density of the part of the body being imaged, he said.

Dr. Rydberg will present his study at the ARRS annual meeting on April 17 in Washington, DC.

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