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NEWS

RSNA Press Release

Obesity Hinders Imaging Quality, Diagnosis

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At A Glance

- Obesity can limit the ability to obtain quality images using current imaging equipment.
- Even mild obesity can impede the accuracy of ultrasound.
- Incidence of obesity has increased dramatically in the last 20 years. Today, nearly one in three Americans is obese.
- The direct cost impact of obesity on medical imaging has more than tripled since 1995.

CHICAGO - Obesity not only leads to numerous health problems, it can also limit the imaging equipment used to diagnose those problems, according to a study presented today at the annual meeting of the Radiological Society of North America (RSNA).

"Hospital radiology departments are increasingly unable to adequately image and assess obese patients because of the limitations in current radiology equipment," said Raul Uppot, M.D., a fellow in abdominal imaging and interventional radiology at Massachusetts General Hospital (MGH) in Boston.

According to the Centers for Disease Control and Prevention (CDC), obesity has grown dramatically in the last 20 years. Today, nearly one-third (30.5%) of the American population is obese.

Dr. Uppot and colleagues conducted a 15-year retrospective study of all radiologic exams at MGH to determine how obesity affects the ability of radiology departments to provide optimum image quality and accurate diagnoses.

The study reviewed radiology reports filed between 1989 and 2003 that were labeled as "limited by body habitus," meaning limited in quality due to the patient's size. The percentage of limited reports nearly doubled over the 15-year period, from 0.10 percent in 1989 to 0.19 percent in 2003, which strongly correlates with the increase in obesity in the state of Massachusetts from nine percent in 1991 to 16 percent in 2001.

The imaging exam most often filed as limited was abdominal ultrasound (1.5%), followed by chest x-ray (0.08%) and abdominal computed tomography (CT) (0.04%). Because ultrasound waves must penetrate through body tissue to produce a quality diagnostic image, quality could be compromised in even slightly overweight patients. X-rays can also be limited by inadequate penetration and film size.

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CT and magnetic resonance imaging (MRI) are predominantly limited by the amount of weight the equipment can support and the size of the area designed to accommodate the patient. Under most circumstances, quality CT images can be obtained in patients weighing up 450 pounds, and most MRI equipment can accommodate patients up to 350 pounds.

Dr. Uppot calculated the direct costs of the incomplete radiologic exams at approximately $100,000 in 2003, more than triple the 1995 cost of $28,000. "Although the direct cost impact of obesity on imaging is still relatively small today, it has grown at an alarming rate over the past 15 years," he said.

He said future studies should also measure medical and psychological costs from increased hospital stays, further diagnostic testing and misdiagnosis in individuals who could not be imaged at all because they are too large for the equipment.

"Manufacturers need to think about design changes and technological advancements to obtain quality imaging in larger patients," Dr. Uppot said. "In the meantime, radiologists need to be aware of the limitations of their current imaging equipment and optimize current protocols and equipment settings to accommodate America's fattening population."

Co-authors of the paper presented by Dr. Uppot are Dushyant Sahani, M.D., Peter Hahn, M.D., Mannudeep Kalra, M.D., Sanjay Saini, M.D., and Peter Mueller, M.D.

Abstract:	• Limited by Body Habitus: Economic and Quality Control Issues in the Ability of a Radiology Department to Provide Diagnostic Imaging to a Fattening Population

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RSNA is an association of more than 37,000 radiologists, radiation oncologists and related scientists committed to promoting excellence in radiology through education and by fostering research, with the ultimate goal of improving patient care. The Society is based in Oak Brook, Ill.

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