

# CT scans to determine heart disease in the emergency room

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In the future, patients who arrive at a hospital Emergency Department complaining of chest pain may be diagnosed with a sophisticated CT scan. If the diagnosis is negative, the patient can go home—and the total time at the hospital will be much shorter than it is today.

That is the theory behind a study being presented at the RSNA (Abstract ID: 5009389) by Rajan Agarwal, M.D., a resident in Radiology at the University of Pennsylvania School of Medicine.

“The cost of chest pain triage (where patients in the Emergency Department are prioritized based on their symptoms) and management has been estimated to be as high as \$8 billion annually, with most patients ultimately not having to remain in the hospital. Therefore,” Dr. Agarwal states, “there is a tremendous opportunity to reduce health care costs if we can demonstrate the cost-effectiveness of this procedure with low-risk patients who go to the Emergency Department.”

Further, this reduced length of stay improves resource utilization by decreasing costs, improving inpatient bed shortages and reducing crowding in the Emergency Department.

In the study, a total of 202 patients, older than age 30, who came to the Emergency Department at the Hospital of the University of Pennsylvania between October 2005 and February 2007, and whose primary complaint was chest pain, were given an electrocardiogram and a specialized CT scan.

Patients were excluded from the study who were allergic to an iodine contrast, had an abnormal heart rate or could not take beta blockers. Patients who were admitted to the hospital were also excluded.

“We looked to determine the length of stay and times between critical points in the treatment of low-risk patients,” Dr. Agarwal explained.

“Patients were divided into three areas: all patients who received CT scans; patients who received the scans during 7 a.m. to 6 p.m. (ON hours) when the scans were available and 6 p.m. to 6 a.m. (OFF hours) when the scans were not available.

Results showed that patients who came into the Emergency Department during ON hours spent a total of 9 hours and 39 minutes in the department before being discharged; patients who came to the Emergency Department during OFF hours spent a total of 12 hours and 15 minutes in the unit. Patients who were referred to the CDU (Clinical Decision Unit, which provided the CT scan, as well as additional evaluation and observation) spent 21 hours and 50 minutes in the hospital if they came during ON hours and 18 hours and 38 minutes if they came during OFF hours.

Future studies, Dr. Agarwal suggests, will look at all the costs, including lab tests and diagnostic tests, associated with a low-risk patient’s visit to the Emergency Department.

Source: University of Pennsylvania

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