HealthManagement
Promoting Management and Leadership

Boston Marathon Bombings: Emergency Radiology Response Assessment

A review of the Brigham and Women's Hospital emergency radiology response to the Boston Marathon bombings in April 2013 underscores the vital role medical imaging plays in emergency situations. At the same time, the new study focuses on how radiology departments can improve their preparedness for mass casualty events.

As a Level 1 trauma centre, the hospital received 40 of the injured patients, most within hours after two bombs exploded near the finish line of the Boston Marathon.

"Evaluating our response to events like the Boston Marathon bombing is very important as this helps us make the necessary improvements to our institutional emergency operations plan", explained senior author Aaron Sodickson MD, PhD, emergency radiology director at Brigham and Women's Hospital.

Medical imaging is one of the means to determine which patients need attention most quickly, according to lead researcher John Brunner, MD, an emergency radiology fellow working in the hospital's Emergency Department at the time of the Boston bombing incident. "The use of shrapnel-laden explosive devices resulted in extensive shrapnel injuries that required evaluation with X-ray and computed tomography, or CT."

Among the 40 patients brought to the emergency unit of the hospital, 31 patients (78 percent) underwent imaging, requiring 57 X-rays for 30 patients and 16 CT scans for seven patients.

The emergency situation led to mobilisation of staff including attending radiologists, radiology fellows and residents, plus X-ray and CT technologists. Additional imaging machines from elsewhere in the hospital, including portable X-ray units and two CT scanners, augmented the usual emergency radiology equipment (two fixed digital X-ray units and two portable X-ray machines, a CT scanner and an ultrasound machine).

The researchers compared turnaround times -- the amount of time taken to perform exams and to interpret the results -- from routine emergency radiology operations with those during the mass casualty event. They noted these key findings:

- CT exam turnaround time averaged 37 minutes during the mass casualty event, much lower than the annual median of 72 minutes during routine operations (simultaneous use of three CT scanners led to the fast turnaround time, according to researchers),
- the X-rays took longer to complete (median 52 minutes) than during routine operations (31 minutes), due to a technical bottleneck as the portable X-ray units relied on a single-ray plate readout device.

To eradicate the bottleneck, the portable X-ray machines have been replaced by digital radiography equipment with wireless image transfer to ensure faster exam completion.

Brigham and Women's Hospital has also overhauled its system for naming unidentified patients because of the confusion and duplication of imaging orders experienced during the mass casualty event. The new system includes a combination of a unique colour, gender and numeral (eg, Crimson Male 12345) to ensure a more reliable way of identifying patients.

Source: RSNA

Published on : Tue, 15 Jul 2014