

Evidence-Based Practice (EBP) - E203

Poster

Abstract Title:

Implementation of an Evidence-Based Blunt Radiographic Imaging Protocol Decreases High Dose Radiographic Studies

Authors:

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Background & Purpose:

Substantial variability exists in the ordering practices during the initial evaluation of blunt trauma patients, which may result in unneeded exams and unnecessary radiation exposure. We examined the impact of the implementation of an evidence-based radiographic imaging protocol on imaging utilization during the initial evaluation of blunt trauma patients.

Study/Project Design:

Data was obtained during a 3 month period after protocol implementation, and compared to the same period one year prior

Setting:

Level I Trauma Center based in a community hospital with surgery and emergency medicine residency programs

Sample:

All admitted adult blunt trauma patients during the two 3 month periods were studied. Any with outside imaging were excluded. 298 controls and 271 study patients were enrolled.

Procedures:

A multidisciplinary group met to develop a set of evidence-based guidelines for ordering initial radiographic studies of the head, face, neck, chest, abdomen, as well as the cervical, thoracic and lumbar spine. The guidelines were based on the Canadian Head CT Rule, the Canadian C-spine Rule, and other current literature. Final guidelines incorporated input from physicians, nursing and CT technologists. After a one month orientation period and several educational sessions, all adult blunt trauma patients (>18 years old) who were admitted to the inpatient trauma service at a Level I trauma center during a 3 month period had initial studies ordered according to the protocol. Patients presenting with old trauma or outside imaging studies were excluded. Results were compared to control patients admitted during a similar 3 month period one year prior to the study period. Statistical analyses were performed using the Fisher Exact Test.

Findings/Results:

A total of 296 patients presented during the study period. Sixty seven were excluded due to old trauma or outside imaging. During the control period, 288 patients were analyzed and 73 were excluded for the same reasons. All results are reported per 100 patients. Ordering accuracy increased from 88% in the control period to 96% during the study. There were no missed injuries.

There were 271 total CT scans performed during the study vs 298 controls. The number of head CT scans was 85 in the study vs 82 controls. CT C-spine was 86 in the study vs 84 controls. CT Chest decreased significantly to 33 vs 53 in the control group. CT Abdomen also decreased significantly to 43 vs 57 in the control group.

Discussion/Conclusions/Implications:

Implementation of a blunt trauma radiographic imaging protocol reduced the number of CT scans by 27 studies per 100 patients. The greatest decreases were in CT chest (20 studies/100 patients) and CT abdomen (14 studies/100 patients) ($p < 0.05$). Conventional xray of the thoracic and lumbar spine increased since reformatted spine images from CT of the chest and abdomen was less frequently available. There was also a slight increase in CT head, CT angio neck and CT cervical spine due to more uniform adherence to guidelines. There were no missed injuries during either period. Overall, implementation of the imaging protocol resulted in less use of high-dose radiographic imaging studies.