



Article Appraisal

Article: The validity of abdominal examination in blunt trauma patients with distracting injuries. Rostas J, Cason B, Simmons J, Frotan MA, Brevard SB, Gonzalez RP. J Trauma Acute Care Surg. 2015 March;78(6):1095-1011.

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Background and Study Objective(s):

The utility of the clinical abdominal examination in the setting of the alert and hemodynamically stable blunt trauma patient with distracting injuries has long been a controversial topic. Previous theories have suggested that intra-abdominal injuries may be asymptomatic or that distracting injuries may mask serious abdominal injuries (counter-irritation and distinction of pain sensitivity theories). The purpose of this study was to assess the efficacy of abdominal clinical examination in patients with distracting injuries to minimize unnecessary radiation exposure in this population.

Study Design:

This study was a prospective convenience cohort study conducted at the University of Southern Alabama Trauma Centre (Level 1) over a 12-month period. All awake and alert, hemodynamically stable blunt trauma patients >13yo with GCS 14 or 15, who were admitted as trauma activations, were entered into the study protocol (regardless of ETOH/distracting injuries). Each patient underwent a consistent clinical assessment for neurologic injury performed by questioning the patient for presence of pain, movement of extremities, and physical exam to assess for spinal cord neurologic deficits. Patient were only included if they did not demonstrate deficits in these areas. Abdominal clinical examination was subsequently performed and documented prospectively on all patients (four-quadrant anterior abdominal palpation, flank palpation, lower thoracic palpation, pelvis examination, and palpation of the thoracolumbar spine). All patients then underwent computed tomographic scan of the abdomen and pelvis with intravenous contrast.

Results:

A total of 803 patients were enrolled in the study: 451 patients had distracting injuries, and 352 patients did not. Of the 352 patients without distracting injuries, 19 (5.4%) had intra-abdominal injuries, of whom 2 (10.5%) had negative clinical examination result. Of the 451 patients with distracting injuries, 48 (10.6%) were diagnosed with intra-abdominal injury, of whom 5 (10.4%) had negative clinical examination result. All five missed injuries in patients with distracting injuries were solid organ injuries, none of which required surgical intervention or blood transfusion. The sensitivity and negative predictive value of abdominal examination for patients with distracting injuries were 90.0% and 97.0%, respectively (Negative LR 0.20). The sensitivity and negative predictive value of abdominal examination for surgically significant and transfusion-requiring injuries were both 100% (Negative LR 0.00).

Validity of Results:

The study was a convenience cohort and no appropriate sample size calculations were done. It underpowered and unable to prove or disprove equivalence of abdominal clinical exam in patients with and without distracting injuries. The study included 800 patients but based on their calculations would have required 7,000 patients for study to be powered at 80% with a probability of 0.05.

Generalizability of Results:

The data collected on patient demographics was limited but thought to have a generally similar patient population as our Level 1 Trauma Centers. The method of abdominal clinical examination used in the study was outlined but it was unclear what constituted a "positive" finding in this setting; the FAST examination was also not utilized but is commonly used in our Centers as an adjunct to the clinical examination. Thus, it was unclear as to how these results would be reproduced and utilized moving forward.

The Bottom Line:

The general consensus of this Journal Club was that this was a study of convenience and lacked a clear research question. It was also underpowered to determine if there is a difference in the clinical utility of the abdominal exam in this patient population. Overall, it was not felt to be a study that would alter anyone's practice.