What’s New in Emergencies, Trauma, and Shock? Using Abdominal Computed Tomography in Geriatric Patients on Warfarin

Dear Editor,

Falls are such a common health hazard among the elderly, especially in the setting of antithrombotic therapy, that any and all research on this topic is welcome. The objective of this study was to review current tendencies and utility of obtaining an abdominal computed tomography (CT) scan in the geriatric fall patient on warfarin therapy. To accomplish this, the authors retrospectively evaluated the decision-making rational involved in obtaining an abdominal CT in patients over the age of 65 after a fall from standing while on warfarin antithrombotic therapy. The rationale for obtaining an abdominal CT was evaluated in the context of isolated head injury, abnormal abdominal examination, presence of distracting injury, and the extent of anticoagulation or addition of antiplatelet therapy.

The study is intriguing because it delves into the necessity and risks of CT imaging—a popular and controversial topic today.[1] A cost analysis of CT imaging would benefit this study as the average charge for a CT scan is about $1,500, which adds a significant cost increase for the patient.[2,3] There is certainly a trade-off between the benefits and risks physicians must consider when ordering CT imaging that this study would profit from analyzing.[4]

The authors defined “abdominal trauma” as a CT-proven injury to solid organs, visceral organs, or pelvic structures. It is unclear if all pelvic bone and spine fractures are included with this injury identification, and a more extensive breakdown of the included abdominal injuries would be useful. For a study whose goal is to determine the diagnostic value of CT, the analysis is limited by the small study population. The study has only 48 standing fall participants having received an abdominal CT scan over the course of the year—despite the authors’ statement that the abdominal CT is overused for geriatric fall patient evaluation. Since this is a retrospective chart review, it would be reasonable to expand the study period to include a greater number of cases, increasing the power of the study. In addition, there is no discussion of any complication associated with obtaining the abdominal CT scan in this study. More specifically, it is assumed that the abdominal CT scan was done with intravenous contrast, with associated risk of contrast nephropathy in this elderly study group.

As noted by the authors, the retrospective nature of this analysis presents significant limitations. The analysis does not address the variability of the individual practitioner’s patterns in obtaining CT scans. This variability in practice pattern may lead to conclusions that are biased and unique to individual practitioners. The authors attempt to retrospectively account for missed injuries in the nonimaged group by performing a chart review of patients who were re-admitted to their hospital system over the following year. Although helpful, this leads to a limited analysis as it fails to identify injuries not significant enough to require a re-admission.

The authors identify within their manuscript that a frequent rational for CT imaging was the presence of “distracting injury.” Cited distracting injuries include thoracic spine fracture, nasal fracture, and scapula fracture. These distracting injuries appear to fall into two categories. One implies distracting pain (nasal fracture) while the other implies significant energy impact to the torso (thoracic spine and scapula fracture). It may be anticipated that the significant energy group would have a higher likeliness of intra-abdominal injury and it is reasonable to evaluate the significant injury group separately from the distracting pain group in the analysis. Three of seven patients with distracting injuries had a benign examination while having CT identification of intra-abdominal injury. Further evaluation of this group would be useful.

The authors note that patients with isolated head trauma (no distracting injury or abnormal abdominal examination) had no instances of abnormal abdominal CT. Unfortunately, the extent of head trauma was not defined in the study. They also noted no association with the degree of anticoagulation or addition of antiplatelet agents and the finding of an abdominal injury.

Indeed, the conclusion that the majority of geriatric fall patients on warfarin will not have an abdominal injury is important. This study identifies an existing practice pattern to obtain an abdominal CT after a geriatric on warfarin falls from standing. Although the study size is limited, the authors call this practice pattern into question. Without the presence of abnormal abdominal examination or “distracting injury,” the authors find the likeliness of abdominal injury to be very low. The degree of anticoagulation or addition of antiplatelet therapy was not found to impart an increased risk of abdominal injury. Unfortunately, its small study size, retrospective analysis, and ill-defined parameters for abdominal injury, distracting injury, and head injury limit the reliability of this analysis.

Future analysis with more clearly defined patient parameters will be helpful in establishing the role of CT imaging in this patient group.
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