CT Scanning Is Sufficient to Clear the Cervical Spine of Elderly Falls Less Than 5 Feet.

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CT Scanning Is Sufficient to Clear the Cervical Spine of Elderly Falls Less Than 5 Feet

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Background
- In elderly patients with low mechanism of injury, such as those who fall from less than five feet, the risk of a purely ligamentous injury is low in the absence of calcified ligaments.
- Cervical spine injuries are not uncommon after elderly falls, especially fractures of the odontoid.
- Cervical spine clearance is often complicated in elderly patients.
- Elderly patients may have compromised exams secondary to dementia, drugs, and other co-morbidities.
- Obtunded patients present as a special challenge. However, a recent study evaluated obtunded trauma patients with gross movement of all extremities and found CT was sufficient to clear the cervical spine.
- Interventions in the elderly population carry serious risks.
- Prolonged use of cervical collars can lead to pressure ulcers, increased agitation, or respiratory or swallowing difficulties.
- MRI evaluation to rule out ligamentous injury carries risks and cost.

Hypothesis
- We hypothesize in elderly patients who present with a negative neurological exam, a negative CT will safely clear the cervical spine in these patients.

Methods
- Retrospective review from 3/2007 to 8/2008
- Trauma registry of Level I trauma center
- All patients 75 years of age or older who fell from less than five feet included.
- NEXUS criteria was used to clear the cervical spine without radiographic studies in selected patients.
- Plain films, cervical CT and/or cervical MRI were performed on appropriate patients.
- Data collected:
  - Age
  - Gender
  - Race
  - ISS
  - Co-morbidities
  - Length of stay
  - ICU/vent days
  - Discharge disposition/Mortality
  - Radiologic studies performed for the cervical spine

Outcome measures
- Need for surgery or need to continue to wear a cervical collar at discharge

Study population
- 1259 patients met criteria
- Average age - 84 years
- Average LOS - 5.3 days
- Average ISS - 10.1

Radiographic studies performed
- 636 patients had studies; 623 had no studies
- 8 patients only received an MRI without CT
- 58 patients received CT and/or MRI evaluations
- 552 patients received CT evaluation
- 18 patients only received plain films
- 8 patients only received CT evaluation
- 22 patients only received MRI without CT

Results
- 72 (5%) patients were discharged with cervical collars or received surgery prior to discharge.
- 1187 patients (95% of patients) were discharged without a collar or a surgical intervention.
- No CT performed
- Positive CT Scan
- Negative CT Scan
- No CT performed
- Positive MRI
- Negative MRI

No patient with a positive MRI had a negative CT, negative plain film and/or a normal neurological exam.

Conclusion
- We conclude that, since ligamentous injuries are rare in patients who fall from standing, liberal use of CT and only selective use of MRI is a safe approach to clearing the cervical spine in this group.
- By only performing MRIs on patients with persistent neck pain, neurological findings and/or positive CT/plain films, we were able to safely reduce MRI use (and the potential associated risks) to just 66 patients.

Reference