

## Comparison of Type and Severity of Major Injuries in Undertriaged and Correctly Triage Older Patients

### STUDY QUESTION

To describe the injury types, injury severity and survival outcomes of undertriaged elderly patients in motor vehicle accidents and correctly triaged cohort.

### STUDY DESIGN

**Design:** Secondary analysis of data from the National Automotive Sampling System Crashworthiness Data System.

**Setting:** Representative, stratified random sample of all police-reported vehicular crashes in the United States between January, 1, 2004 and December 31, 2008.

**Patients:** Patients aged 65 years or older with a maximum Abbreviated Injury Scale (mAIS) score of 3 (serious), 4 (severe), or 5 (critical), and were transported from the crash scene to a trauma center or non-trauma center hospital ED were included. "Undertriage" was not explicitly defined, but the author implies that transfer of a geriatric trauma patient with mAIS  $\geq 3$  to a non-trauma center constitutes undertriage.

**Description of Intervention:** No intervention

**Outcomes:** Authors compared age, sex, type of injuries, mAIS scores, mean Injury Severity Score (ISS), and fatalities including time to death.

### MAIN RESULTS

The total sample included 66,445 patients. 17,403 (26%) were considered undertriaged. Mean age and gender breakdown were similar in each cohort. There were more fatalities in the correctly triaged cohort (5805 [11.8%] vs. 1,041 [6.0%]). The mean ISS was lower in the undertriaged group (17.7 [SD 10.0] vs. 19.8 [SD 10.6]) than in the correctly triaged. A higher percentage of patients had lower severity AIS scores in the undertriaged group compared to the correctly triaged group. The greatest proportion of undertriaged patients (10,274/17,403, 59.0%) were injured in outlying areas.

### CONCLUSION

The large number of elderly with 3,4,5 mAIS injuries who present to non-trauma EDs after motor vehicle collisions underscores the need for a thorough search for life-threatening injuries.

### ABSTRACTED FROM

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### COMMENTARY by Shan Liu, MD, SD (Massachusetts General Hospital)

Concern regarding undertriage of elderly trauma patients has existed for over 20 years.[1] Even when adjusted for injury severity, geriatric trauma patients have increased mortality and higher complication rates, so many experts recommend that age 55 years and older become an independent criterion for transport from the scene to a trauma center.[2] Using age-alone criteria the undertriage rate fell from 42% to 22% between 2004 and 2008.[3] In the current study, 26% of geriatric trauma patients were still undertriaged. Unfortunately, the author did not evaluate for clinically relevant differences between the two cohorts or use modeling to assess factors associated with undertriaging. She concludes that with the exception of cervical spine fractures, injuries do not explain undertriage and suggests that EMS training and age bias might be possible factors.[4] A more likely reason would be geography as 59% of undertriaged patients were injured in outlying areas. Another reason is that despite clinically significant injuries, critically ill geriatric patients frequently fail to exhibit hypotension, tachycardia, or pain.[5] The author does raise awareness of undertriage but future studies should evaluate the modifiable factors associated with undertriage.

### REFERENCES

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