

Commentary

Proposing the FLOCK Score as a Triage Tool and Outcome Predictor in the Older Age Trauma Population

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It is well known both anecdotally and quantitatively that older age patients greater than 65 years are a particularly vulnerable population in medicine. This characterization holds true in the trauma literature where older age patients incur a disproportionate percentage of injury related mortality among other poor outcomes [1]. Older age patients often lack the physiologic reserve to recover from injuries and are less likely than younger patients to be discharged to home after admission or to live independently. The 2018 United States census estimates that 52 million Americans are over the age of 65 [2]. Projections ubiquitously estimate this percentage to grow in the coming decade as life expectancy increases due to ability to manage chronic comorbidities and other advances in healthcare. The US is not alone as similar demographic shifts are expected in densely populated regions including East Asia and Western Europe. With a burgeoning older age population worldwide there will be proportionate increases in trauma within this population.

Falls comprise approximately 75% of all older age trauma presentations, 90% of which are from standing height. Despite the relative low energy of a ground level fall, older age patients suffer high rates of morbidity and mortality from this mechanism [3]. Age and medical comorbidities alone often fail to explain the large outcome discrepancies in the older age population. Social determinants of health among this population have a tremendous impact on the presentation, quality

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of care, discharge disposition and outcomes [4]. Poor functional status, unsuitable living conditions, social isolation, neglect and abuse are all too common [5]. These are exemplified in the older age trauma population who present truly “in the fell clutch of circumstance [6].”

A variety of scoring mechanisms have been developed to risk stratify and model outcomes for older age patients. Several frailty indexes, injury severity scores, and analyses have been proposed and validated [7,8]. But these models are not specific for acute care trauma patients, under-value social determinants of health while focusing mostly on presenting vital signs, or are too cumbersome to utilize effectively in triage. In a population at exceedingly high risk of under-triage and underestimation of injury severity, an effective yet succinct scoring model may better empower trauma providers to characterize and capture this at-risk patient population [9].

We are creating a prospectively collected registry of injured older age patients at our level one trauma center, one of the highest volume centers in the United States for this demographic. The mean age of our admitted trauma patients is 59 years compared to the national average of 52 years. In New England we admit the most patients greater than the age of 65 with rib fractures, subdural hematomas, and those that are injured while on anticoagulation. We hope to model patients through a streamlined scoring system to risk stratify elderly trauma patients on presentation. Endearingly named the FLOCK score, the acronym combines a patient’s functional status, living situation, occupation, comorbidities and presence of kids in their lives for support and decision making, to model and predict patients who may be at risk for poorer outcomes, prolonged hospitalizations, and increased mortality (Table 1).

	FLOCK Score	
F - functional status [10]	-can prepare one’s own meals	+1
L - living situation	-does not live in a facility that provides daily assistance	+1
O - occupation	-does non-volunteer paying work	+1
C - comorbidities	-no unplanned hospitalization in the last year for an acute or chronic medical problem, or fall	+1
K - kids	-children within driving distance that can help with tasks in the home	1
		Total ____

Table 1: FLOCK score.

Such a tool may enable providers to better triage, identify high risk patients, and model inpatient needs in other trauma centers for a problem that is inevitably going to grow substantially in volume. For some months now we have used the FLOCK system as a guide in mostly a qualitative fashion upon patient presentations. We look forward to honing the tool by formalizing the quantitative elements, determining predictive thresholds of the score, creating a smartphone app, and adding the tool to the electronic health record.

Impact Statement

There is a growing burden of trauma in older adults who are known to suffer worse outcomes after injury than younger patients. Scoring systems and triage tools for older adults who suffer injury are lacking. We have proposed a novel and straightforward scoring system to be tabulated upon patient presentation that can guide triage and may be able to predict outcomes. The system may also be generalizable to other trauma centers to improve resource utilization and guide patient and family expectations, especially disposition at discharge.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

Gregory Mouradian wrote the initial manuscript draft, Roberto Cortez edited the manuscript, Andrew Stephen designed the project and edited the manuscript.

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