

A Two-Center Validation of “Patient Does Not Follow Commands” and Three Other Simplified Measures to Replace the Glasgow Coma Scale for Field Trauma Triage

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Study objective

Out-of-hospital personnel worldwide calculate the 13-point Glasgow Coma Scale (GCS) score as a routine part of field trauma triage. We wish to independently validate a simpler binary assessment to replace the GCS for this task.

Methods

We analyzed trauma center registries from Loma Linda University Health (2003 to 2015) and Denver Health Medical Center (2009 to 2015) to compare the binary assessment “patient does not follow commands” (ie, GCS motor score <6) with GCS score less than or equal to 13 for the prediction of 5 trauma outcomes: emergency intubation, clinically significant brain injury, need for neurosurgical intervention, Injury Severity Score greater than 15, and mortality. As a secondary analysis, we similarly evaluated 3 other measures simpler than the GCS: GCS motor score less than 5, Simplified Motor Score, and the “alert, voice, pain, unresponsive” scale.

Results

In this analysis of 47,973 trauma patients, we found that the binary assessment “patient does not follow commands” was essentially identical to GCS score less than or equal to 13 for the prediction of all 5 trauma outcomes, with slightly superior positive likelihood ratios (eg, those for mortality 2.37 versus 2.13) offsetting slightly inferior negative ones (eg, those for mortality 0.25 versus 0.24) and its graphic depiction of sensitivity versus specificity superimposing the GCS prediction curve. We found similar results for the 3 other simplified measures.

Conclusion

In this 2-center external validation, we confirmed that a simple binary assessment—“patient does not follow commands”—could effectively replace the more complicated GCS for field trauma triage.

Please see page XX for the Editor’s Capsule Summary of this article.

Supervising editor: David L. Schriger, MD, MPH

Author contributions: SMG and JSH designed the study. EH and MK prepared and organized the data. EH and JSH analyzed the data. SMG drafted the article. EH, MK, and JSH revised the article critically for important intellectual content. All authors approved the final version and are accountable for all aspects of the work. SMG takes responsibility for the paper as a whole.

All authors attest to meeting the four [ICMJE.org](http://www.icmje.org) authorship criteria: (1) Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND (2) Drafting the work or revising it critically for important intellectual content; AND

(3) Final approval of the version to be published; AND (4) Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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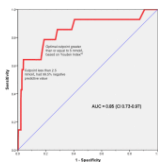
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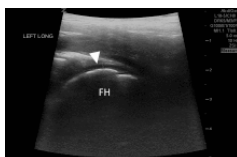


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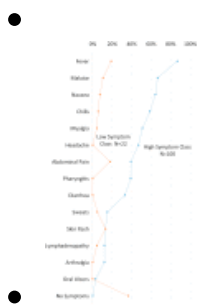


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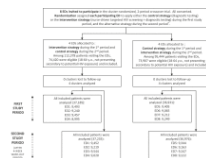
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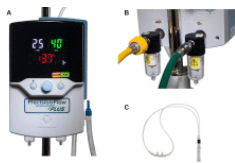
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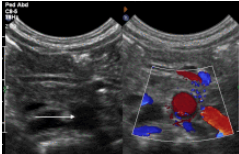
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- The image shows the cover of the African Journal of Emergency Medicine (AfJEM). It features a yellow background with a black silhouette of the African continent. The text 'AFEM' is at the top, and 'AfJEM' is prominently displayed in the center, with 'African Journal of Emergency Medicine' written below it.

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