

MATTERS ARISING

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Scoring system: use and not use from the future to present

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We appreciated the letter from Wohlgeut and colleagues regarding the TIC score that we recently published in *Critical Care* [1, 2]. They highlight the value of this score for the early detection of traumatic coagulopathy, and recognize its ease of use upon hospital admission [2]. However, they challenged several points in our discussion regarding their Bayesian network score [3]. Briefly, they highlight the flexibility in modelling continuous variables, as well as the improved discrimination and calibration of their model. They suggest that prediction of coagulopathy is possible even with missing variables, which the TIC score theoretically cannot do. Finally, they suggest it may no longer be necessary to compromise model performance to achieve a simpler, more user-friendly model, due to advances in user interface design and user experience. It should be noted that we have deliberately chosen to compare our results with the model described by Yet B et al. because the model had

good performance metrics and provides a realistic view of the causality of trauma-induced coagulopathy [3].

Their method relies on a set of data including clinical observation, physiological parameters, radiological findings and laboratory values being implemented automatically in a software application, enabling clinical decision making. Unfortunately, this does not currently match the reality of contemporary hospital care [4]. Furthermore, they argue that the Bayesian network scoring system can handle missing variables and estimate them from pre-existing data. We have chosen to include only pre-hospital parameters in our model, as they are immediately available at the time of admission or even during the pre-hospital phase of care. In our model, no parameters are missing at admission, except in rare cases when capillary hemoglobin measurement is not available. The score we described can be easily calculated mentally, driving immediate decision-making for the trauma patient [1]. The author's final point regarding the strength of Bayesian network analysis also reveals its weakness: weak diffusion. To our knowledge, the model has not been published and is therefore not reproducible by other centers, with the added difficulty of understanding and executing this analysis for the physician unfamiliar with such a model. There is also the "black box" issue, of using a model that obscures the weight of each variable, and its associated under-utilization in the medical field [5]. A simpler—but still accurate—scoring system not only provides a better understanding of the presence of trauma-induced coagulopathy, but also enables rapid and easy implementation of corrective therapy.

In conclusion, models such as Bayesian networks are currently rarely used, even though they represent a highly promising tool for the future of medicine. Until these

This comment refers to the article available online at <https://doi.org/10.1186/s13054-024-04955-7>.

This reply refers to the comment available online at <https://doi.org/10.1186/s13054-024-05015-w>.

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techniques are ready for prime time, we believe it is still useful to have simple, pragmatic and easy-to-use tools to help doctors anticipate patients' needs.

Acknowledgements

We thanks Dr Kenji Inaba (Department of surgery, University of Southern California, Los Angeles, USA) for proofreading and correcting the English version of the article.

Author contributions

Charles-Hervé VACHERON: This author helped in writing the first draft of the manuscript, reviewing the manuscript; Jean Stephane DAVID, Albrice LEVRAT & Louis BRAC: These authors helped in reviewing the manuscript.

Funding

None.

Availability of data and material

No datasets were generated or analysed during the current study.

Declarations

Ethics approval

Not applicable.

Consent for publication

Not applicable.

Competing interests

JSD did lectures and consulting for LFB (Les Ullis, France).

Received: 23 July 2024 Accepted: 27 August 2024

Published online: 13 September 2024

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