

Determination of prehospital biomarkers to be considered in early warning scores

Determinación de biomarcadores prehospitalarios a considerar en las escalas de alerta temprana

To the Editor,

We read with great interest the systematic review and meta-analysis by Díaz-González *et al.*¹ To our knowledge, there is a scarcity of studies addressing the prognostic value and impact of analytical parameters or biomarkers within predictive scales of clinical deterioration applied in the prehospital setting. Prehospital care relies on trained multidisciplinary teams; therefore, such studies are essential for the early detection of other time-dependent conditions. In the Catalan emergency medical system, which serves a population of more than 8 million inhabitants, 82% of clinical activity is delivered by emergency medical technicians in basic life support (BLS) units.

For this reason, we would like to add several considerations regarding the review, as we did not observe the inclusion, as a Boolean term, of the word “biomarker” and its variants, nor the inclusion of studies evaluating a single biomarker. This may have introduced bias and generated limitations. Greater specificity regarding the biomarkers selected would help to better understand the review and to compare the predic-

tive capacity of isolated analytical parameters with that of the selected studies.

Therefore, there is evidence supporting the prognostic value of blood glucose in the emergency setting.^{2,3} Determining the primary cause of glycemic disturbances is complex, given its multifactorial nature. However, marked hypo- or hyperglycemia has been shown to provide additional predictive value for identifying the risk of morbidity and mortality, and it is therefore recommended to consider it in relation to the prediction of functional deterioration in patients attended in the prehospital setting,⁴ or even its interaction with other biomarkers.⁵ Internal data have shown poor results in the recording of noninvasive blood glucose measurements. Omitting this systematic determination during the initial assessment of the critically ill patient represents an avoidable risk, given its universal availability and ease of interpretation by multidisciplinary teams. Furthermore, it is particularly relevant in the initial management of patients exposed to toxic substances, owing to the complexity and variability of symptoms, limitations in anamnesis, and the need to rapidly establish an optimal differential diagnosis. For these reasons, the inclusion of blood glucose determination has been proposed as a new quality indicator and as a predictive value in this type of patient.^{6,7}

On the other hand, regarding several biomarkers, it has been shown that the most severely ill patients present lower pH values and higher concentrations of pCO₂, lactate, and base excess, which—along with blood glucose—demonstrated greater predictive capacity for severity, even exceeding that of hemodynamic variables.⁸

Despite existing controversies,^{9,10} we agree that incorporating blood biomarkers into early warning scores would benefit prehospital care by improving the identification of selected patients in whom early initiation of the most appropriate treatment is warranted, thereby increasing survival. We hope that future prospective studies conducted in different geographic areas and by different prehospital emergency services, together with the results provided by Díaz-González *et al.*, will improve external validation and advance knowledge regarding the im-

pact and usefulness of analytical parameters as predictive values.

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