Response to a Letter to the Editor: Comparison of the predictive ability of lactate and central venous blood gas in pediatric venoarterial mode extracorporeal membrane oxygenation outcome

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Category: Letter to the Editor

Title: Response to a Letter to the Editor: Comparison of the predictive ability of lactate and central venous blood gas in pediatric venoarterial mode extracorporeal membrane oxygenation outcome

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To the Editor:

We thank the authors of this letter for their insightful remarks on our study. [1,2] We wholeheartedly agree with regard to the hemodynamic importance of sampling location of the central venous gas. As we mentioned in the “Method,” section the central venous gas was obtained from the extracorporeal membrane oxygenation venous catheter, which is located in the right atrium. The central venous O2 saturation (ScvO2) has traditionally been regarded as a reliable parameter to represent the status of tissue perfusion, although it still has limitations, including anesthesia and microthrombosis in disseminated intravascular coagulation. [3,4,5] The ScvO2 is also dynamically influenced by the flow setting of V-A mode ECMO. Indeed, the lactate concentration, lactate clearance, ScvO2, the pH value, the levels of carbon dioxide, bicarbonate, and base excess of arterial blood gas were highly correlated each other in such clinical scenarios. [3,6,7] In our study, we used binary logistic regression to determine the independent predictor(s) among variables (Table 4) by selecting the variables with \( p < 0.05 \) by univariate analysis. To achieve the organ demand, ScvO2 was maintained at least above 60% by flow adjustment of V-A mode ECMO, which might lead to the narrow range of ScvO2 value. Apparently, patients with favorable outcome had significantly lower levels of lactate concentrations at later time points when compared with patients with unfavorable outcome. There was no significant difference of ScvO2 between these two outcomes. Both a favorable and unfavorable outcome were independently associated with the lactate concentration at T2. This result suggested that lactate may represent microcirculation adequacy that is highly associated with favorable outcome and that ScvO2 may only represent macro-circulation in V-A mode ECMO patients. Therefore, we would like to remind clinicians that lactate is a reliable measure of microcirculation.
Reference:


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