



ESPS PEER-REVIEW REPORT

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Title: Use of venous-to-arterial carbon dioxide tension difference to guide resuscitation therapy in septic shock

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Table with 4 columns: CLASSIFICATION, LANGUAGE EVALUATION, SCIENTIFIC MISCONDUCT, CONCLUSION. It contains checkboxes for various evaluation criteria like 'Grade A: Excellent', 'Priority publishing', 'Duplicate publication', etc.

COMMENTS TO AUTHORS

This is a timely review to give readers an overview of clinical values of delta-Pa-vCO2 in patients with septic shock. It is generally well written. I have several small suggestions for this review. 1. Between the first and second paragraphs of the introduction, there is a transition from SvO2 to ScvO2, but without any specifications. As we all know, the latter is a good substitute of the former, but these two do not measure the same thing. Therefore, some lines specifying that the two have similar clinical meaning should be added. 2. High/normal ScvO2 may be a result of disturbances in tissue oxygen extraction, this point should be clearly stated in the third paragraph of INTRODUCTION. In discussing the lactate clearance as an end point for resuscitation. Additional citations may be of interests: (1. Intensive Care Med. 2015 Jul 8. Early lactate clearance-guided therapy in patients with sepsis: a meta-analysis with trial sequential analysis of randomized controlled trials. 2. Crit Care Med. 2014 Sep;42(9):2118-25. BMJ Open. 2014 May 23;4(5):e004752. 3. I appreciate figure 4 very much. I think this decision tree is of great value for clinicians and should be highlighted. 4. I think the clinical study section should highlight three main points: 1) as the authors have already well



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described, the $P[v - a]CO_2$ is highly correlated with cardiac output; 2) variations in $P[v - a]CO_2$ is associated with clinical outcomes such as mortality, ICU length of stay or days free of organ failure; 3) $P[v - a]CO_2$, when used as a resuscitation endpoint, should be associated with improved outcomes.