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Some questions about fluid balance for patients with severe sepsis and septic shock

To the Editor,

We read with interest the article recently published by Bereket Molla Tigabu et al. recently published in Journal of Critical Care [1]. The authors concluded that high fluid balance from the first 24 h to ICU discharge increases the risk of mortality in severe sepsis and/or septic shock. Although it sounds scientific, there are some questions worthy of our attention.

First, the studys were conducted from January 2000 to September 2017 in the article. The authors claimed that the details of the protocol was registered at PROSPERO (Registration number: RD42017079560). However, after reading the protocol carefully, we did not mention the inclusion criteria and exclusion criteria for sepsis and/or septic shock. The third International Consensus Definitions for Sepsis and Septic Shock (sepsis 3.0) was published in 2016 [2]. We believe that the authors may confuse the definitions of sepsis and/or septic shock. We suggest that the included studies should be differentiated according to different definitions of sepsis and/or septic shock.

Second, the article intended to the mortality risk in severe sepsis and septic shock with a low and high fluid volume/balance. We carefully read a study included in the article that indicated that nonsurvivors had higher mean APACHE II scores than survivors (29.8 vs 20.4, respectively) and higher first day SOFA scores than survivors (10.8 vs 6.9, respectively), and they were more likely to require vasopressors and mechanical ventilation compared to patients who survived [3]. However, the authors did not provide us with the APACHE II score and SOFA score for all included studies included in the article and these status just occupied a small part of the whole. Thus, it is plausible and necessary to adjust APACHE II and SOFA scores for statistical analysis in this paper as these details could change the final results.

Third, a low and high fluid volume/balanced has different effects on the mortality of severe sepsis and septic shock. We strongly recommend that the authors conduct a subgroup analysis of sepsis and septic shock to arrive at more rigorous conclusions.

The last, we appreciate Bereket Molla Tigabu et al. for this meaningful research which provides us with a new predictive indicator in severe sepsis and septic shock, though some minor details need to be discussed and amended. In addition, randomized clinical trials should be conducted to resolve the dilemma of fluid resuscitation.

Ethical approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of supporting data

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Response to letter to the editor: Fluid volume, fluid balance and patient outcome in severe sepsis and septic shock: A systematic review

To the Editor,

We are grateful to Jiarong Ye and colleagues for the remarkable questions forwarded on our article, fluid volume, fluid balance and patient outcome in severe sepsis and septic shock: a systematic review [1]. The letter highlighted four questions.

First, the where about of inclusion and exclusion criteria in the registered protocol. The registration of this review was done at PROSPERO (Registration number: CRD42017079560). The PROSPERO registration system divides the inclusion and exclusion criteria into the following parts: condition or domain being studied, participants/population, intervention(s)/exposure(s), comparator(s)/control, type of studies to be included and main outcome. In our opinion, this is the best way to clearly state the inclusion and exclusion criteria. Moreover, the points we mentioned under the eligibility criteria are the mirror images of the registered protocol.

Second, the article did not consider the recent sepsis and septic shock definitions. The third international consensus definition for sepsis and septic shock considers the previous model misleading

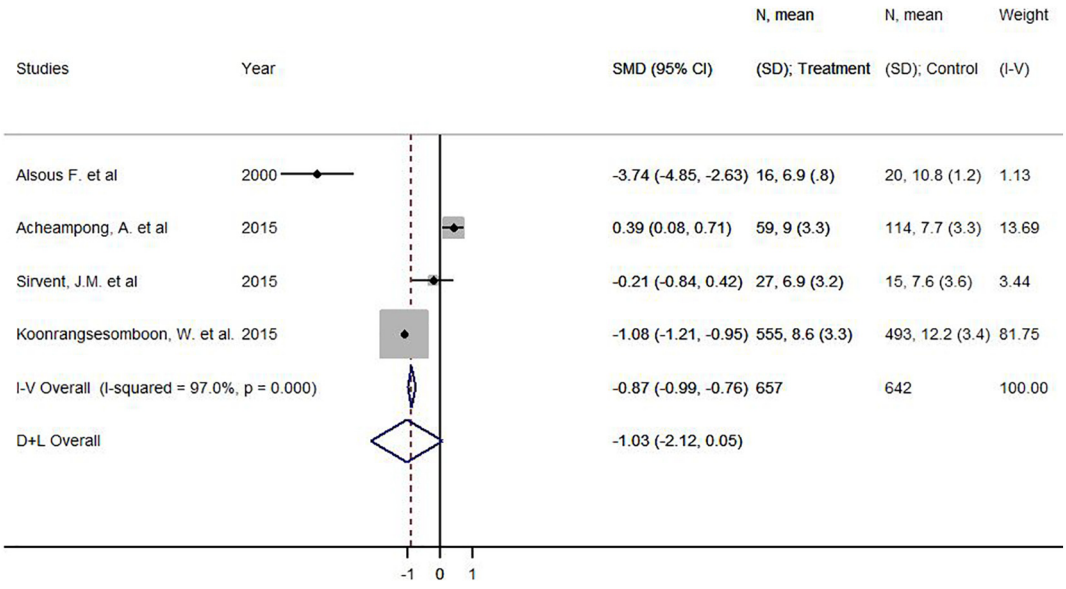

Fig. 1. Standard mean difference in SOFA score between survivors and non-survivors

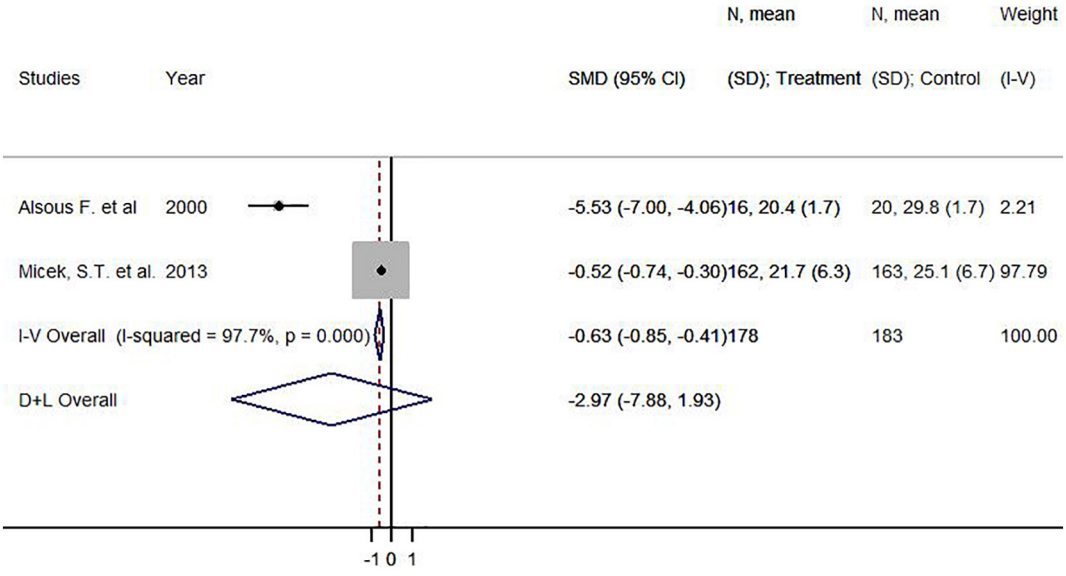

Fig. 2. The standard mean difference in APACHE-II score between survivors and non-survivors

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