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Fluid bolus therapy is a medical therapy or a diagnostic method?

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See related research by Glassford et al., <http://www.ccforum.com/content/18/6/696>

We read with interest the recently published article about the physiological changes after fluid bolus therapy (FBT) in *Critical Care* by Glassford et al. [1]. We are concerned about the concept of FBT in this study.

The authors claim that alternative interventions to FBT may include a diagnostic low-volume FBT, classic fluid challenge, low-volume FBT and low dose vasopressor therapy, or cardiac output-guided therapy. So, FBT could be interpreted as a treatment and a diagnostic method for hypovolemia. We thought this interpretation would cause misunderstanding about FBT. FBT is commonly used to assess fluid responsiveness in hemodynamic management, which is also called 'fluid challenge' [2]. FBT

essentially helps physicians to quickly make decisions regarding fluid management. So, when hypovolemia has been previously definitively diagnosed, it might be improper to define a bolus of fluid such as FBT. We believe that FBT is mainly a diagnostic method and not a method of therapy. We acknowledge that FBT could also be interpreted as a special mode of fluid infusion, but this point is unclear in the study by Glassford et al.

FBT resulted in a positive outcome in only about 50 % of cases in the ICU [3]. In other words, FBT should be avoided in half of critically ill patients. So, we think investigations should focus on how to reduce unnecessary FBT but not the physiological effects of FBT over 2 to 4 h.

Authors' response

Neil J Glassford, Glenn M Eastwood and Rinaldo Bellomo

Liu and He ask if FBT is a medical therapy or diagnostic modality; the answer is, of course, context sensitive. In the context of the immediate management of the septic, critically ill patient, the administration of, often large, volumes of fluid in the form of FBT are an international therapeutic standard of care [4, 5]. FBT is also responsible for large proportions of therapeutic fluid administration in the critically ill [6] and other populations, including cardiac surgery patients [7]. In the context of this review, a fluid bolus was a defined volume of a defined fluid over a defined period of time [1].

We wonder if the confusion arises from one of the fundamental problems with research into fluid administration, fluid resuscitation and fluid responsiveness - the

lack of fixed terminology. Moreover, fluid responsiveness is a complex topic, and not what we sought to investigate. We note that, in general, fluid responsiveness is identified retrospectively, and therefore tautologically. Indeed, from the evidence we were able to identify, there is very limited evidence for persistent physiological improvement even in patients identified as 'fluid responsive' [1].

We feel the question is not one of individual patient fluid responsiveness, but a larger one regarding the need to demonstrate the independent efficacy of FBT in improving patient outcomes. Such evidence is lacking in critically ill patients, whether fluid responsive or not.

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Abbreviation

FBT: Fluid bolus therapy.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

HH and DL drafted the manuscript. Both authors read and approved the final manuscript.

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