ICU
MANAGEMENT & PRACTICE

Fluid responsiveness in sepsis: the fluid challenge revisiting (FCREV) study

Fluid challenge is a common practice in the ICU. It is one of the most important resuscitation manoeuvres of acute circulatory failure management in critically ill patients. Adequate fluid resuscitation is very important because both hypovolaemia and fluid overload can result in poor outcomes in the ICU.

The criteria for fluid administration still remains controversial. A study was conducted to evaluate whether echocardiographic assessment of the response to fluid challenge at the end of the infusion or 20 minutes later could affect results.

The study included ICU patients in septic shock and who required a fluid challenge (FC) of 500 mL crystalloids over 10 minutes. Fluid responsiveness was defined as a > 15% increase in stroke volume (SV) assessed by velocity-time integral (VTI) measurements at baseline (T0), at the end of FC (T_{10}), then 10 (T_{20}) and 20 min (T_{30}) after the end of FC.

Results of the study showed that out of a total of 76 patient responders to FC at T_{10}, 37 were transient responders and 39 were persistent responders. Among the 67 non-responder at T_{10}, 4 became responders at T_{30}. Overall, 51.3% of initial responders had a persistent response to fluid 30 minutes after the beginning of fluid infusion, and only 41.3% had a transient response.

Overall, half of the responders at the end of the fluid challenge were no longer responders 20 minutes later. These findings thus help us define three different profiles of fluid responsiveness: the non-responders who did not demonstrate any fluid efficacy; the persistent responders who exhibited a positive and sustained response to fluid challenge over time; and the transient responders who exhibited a positive response initially but that response was not maintained over time.

These findings highlight the importance of testing fluid responsiveness before administering large amounts of fluid (500 ml) and to also follow this response over time while monitoring the efficacy of fluid infusion on organ dysfunction. Fluid responsiveness should be assessed at the end of the fluid bolus and 30 minutes after the start.

Source: Critical Care
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