The Surviving Sepsis Campaign: Beware of dogma!

In the 16 years since their inception, the guidelines and bundles of the Surviving Sepsis Campaign (SSC) have been considered by some to be the pinnacle of sepsis care. In fact, in the USA, adherence to the SSC bundles is now mandatory. The trigger for the development of such protocolised treatment of sepsis and septic shock was the seminal study by Rivers *et al.*,[1] demonstrating a mortality benefit of so-called 'early goal-directed therapy'. At the time it was the first intervention beyond antibiotics to demonstrate any effect on mortality in this condition, and the concept was subsequently adhered to diligently in the numerous clinical trials that followed.

However, the approach has always been controversial, and a number of concepts 'strongly recommended' by the SSC guidelines have been challenged (some would even say disproven) in large randomised trials. For example, it has been ably demonstrated that protocolised care is no better that 'usual care'. Targeting resuscitation efforts to a central venous saturation >70% and administering blood transfusions for a haemoglobin level >7 g/dL have been shown to be unreliable, if not harmful. Similarly, the recommended initial 30 mL/kg fluid bolus might well be doing more harm than good. The rigid guidelines around the timing of serial serum lactate measurements have never been shown to improve outcomes, yet they are a key feature of the SSC guideline and bundle. To avoid a protracted essay, it suffices to say that the SSC guidelines are not infallible and the authors have shown little flexibility in their approach over the years (despite the panel now being free from industry sponsors).

With the publication of the SSC bundle update in 2018, the debate has heated up considerably. The reason for the increased resistance surrounds timing. The SSC bundles are very specific about the timing of certain interventions, enshrining the 3-hour and 6-hour bundles in previous versions. The 3-hour bundle mandates the measurement of serum lactate, acquisition of blood cultures and administering broad-spectrum antibiotics and the fluid bolus within 3 hours of triage or recognition of sepsis. The 6-hour bundle relates to other efforts to maintain mean arterial pressure, such as the use of vasopressors, and a second measurement of serum lactate.

In the latest update, these two bundles have been combined into a single 1-hour bundle. This means that within 1 hour of triage or the recognition of sepsis, lactate levels should be measured, blood cultures acquired and broad-spectrum antibiotics, a fluid bolus and vasopressors have to be administered as needed.

Paul Marik has vociferously led the charge against the new recommendation. From online petitions to a recent scathing reduction in print, Marik *et al.*[2] assert that complying with a 1-hour bundle would require diagnosing any ill patient with possible infection as septic, which would immediately trigger fluid and antibiotic administration. This strategy could not only result in iatrogenic volume overload of non-septic patients but also contribute to the emergence of resistant organisms and the risk of *Clostridium difficile* infection. The authors make the additional point that the benefit of antibiotic administration within 1 hour, even in septic patients, is questionable and often logistically impossible. They recommend that the SSC guidelines be retired and a new set of evidence-based guidelines be drawn up through the collaboration of international societies.

The balanced view would be to recognise that the last two decades have yielded monumental growth in our understanding of the pathogenesis of sepsis and septic shock and that we are still in the process of translating this information into the clinical setting. The SSC was an admirable step forward in sepsis care and the research that led to its creation has undeniably benefited patients. However, rigidly protocolised treatment is never a good thing; there must always be room for thoughtful application of clinical judgement. Treatment should be tailored to the patient, not the protocol.

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2. Marik PE, Norfolk VA, Farkas JD, et al. Point: Should the Surviving Sepsis Campaign guidelines be retired? Yes. Chest 2019;155(1);12-14. https://doi.org/10.1016/j.chest.2018.10.008