

Sepsis is a dynamic syndrome

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Abstract

In 1991 an International Consensus Conference defined sepsis as a systemic inflammatory response to infection. Sepsis complicated by organ dysfunction was termed severe sepsis, which could progress to septic shock, defined as *sepsis-induced hypotension persisting despite adequate fluid resuscitation*. The new definition of sepsis suggests that patients with at least 2 of 3 clinical variables (Glasgow coma scale score of 13 or less, systolic blood pressure of 100 mmHg or less, and respiratory rate 22/min or greater) may be prone have the poor outcome typical of sepsis. However these variables alone are overly non-specific and cannot drive treatment planning of patients presenting with complicated intra-abdominal infections.

A dynamic and evolving syndrome

We read with interest the article by Singer *et al.* presenting the third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3).¹

We appreciate the effort of the authors in innovating sepsis classification. However we have some concerns on its clinical usefulness in patients with complicated intra-abdominal infections (cIAIs).

In 1991 an International Consensus Conference defined sepsis as a systemic inflammatory response to infection.² Sepsis complicated by organ dysfunction was termed severe sepsis, which could progress to septic shock, defined as *sepsis-induced hypotension persisting despite adequate fluid resuscitation*.

In 2003, a second Consensus Conference³ endorsed most of these

definitions and expanded the list of signs and symptoms of sepsis.

Sepsis is now defined as *life-threatening organ dysfunction caused by a dysregulated host response to infection*. Under this terminology, *severe sepsis* becomes superfluous.

The great merit of the previous classifications^{2,3} was to have convinced the clinicians that sepsis is a dynamic and evolving syndrome that can precipitate into severe sepsis and septic shock.

Since 1991, sepsis has been defined as the body's systemic response to infection, but not necessarily a dysregulated, life-threatening response. Sepsis has been considered as a systemic condition having the potential to evolve into more aggressive systemic forms such as severe sepsis and septic shock.

Grading of clinical severity in patients with cIAIs has been well represented by these sepsis definitions.

Appearance of organ dysfunction (severe sepsis) in patients with sepsis has been considered for patients with cIAIs the cut-off between stable and unstable patients suggesting a risk for progression towards septic shock. In patients with severe sepsis an aggressive management is mandatory.

Recently the WISS study⁴ (WSES cIAIs score study), a multicenter observational study conducted in 132 medical institutions worldwide during a four-month period (October 2014-February 2015), enrolled 4553 patients with cIAIs. This study showed that mortality was significantly affected by sepsis status when divided into four categories ($P < 0.0001$). Mortality by sepsis status was as follow: no sepsis 1.2%, sepsis only 4.4%, severe sepsis 27.8%, septic shock 67.8%.

The new definition of sepsis suggests that patients with at least 2 of 3 clinical variables (Glasgow coma scale score of 13 or less, systolic blood pressure of 100 mmHg or less, and respiratory rate 22/min or greater) may be prone have the poor outcome typical of sepsis. However these variables alone are overly non-specific and cannot drive treatment planning of patients presenting with cIAIs. Systemic inflammatory response syndrome signs associated to other variables⁵ such as acute oliguria and creatinine increase, coagulation abnormalities, hyperlactatemia may allow to better monitor the inflammatory response in patients with cIAIs.

Complete SOFA (sepsis-related organ failure assessment) score is helpful to monitor critically ill patients in Intensive Care Unit but it is much less practical in Emergency Department.

The appearance of a sepsis-induced hypotension or organ dysfunction (severe sepsis) may represent a warning signal of a potential evolution of the sepsis syndrome and raises the threshold of attention of surgeons and very often in clinically doubtful cases suggests the necessity of emergency intervention.

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References

1. Singer M, Deutschman CS, Seymour CW, et al. The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). JAMA 2016;315:801-10.

2. Bone RC, Balk RA, Cerra FB, et al. American College of Chest Physicians/Society of Critical Care Medicine Consensus Conference: definitions for sepsis and organ failure and guidelines for the use of innovative therapies in sepsis. *Crit Care Med* 1992;20:864-74.
3. Levy MM, Fink MP, Marshall JC, et al. 2001 SCCM/ESICM/ACCP/ATS/SIS International Sepsis Definitions Conference. *Crit Care Med* 2003;31:1250-6.
4. Sartelli M, Abu-Zidan FM, Catena F, et al. Global validation of the WSES Sepsis Severity Score for patients with complicated intra-abdominal infections: a prospective multicenter study (WISS Study). *World J Emerg Surg* 2015;10:61.
5. Dellinger RP, Levy MM, Rhodes A, Surviving Sepsis Campaign Guidelines Committee including The Pediatric Subgroup. Surviving Sepsis Campaign: international guidelines for management of severe sepsis and septic shock, 2012. *Intensive Care Med* 2013;39:165-228.

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