Is the *Sepsis-3* definition useful in the management of patients with complicated intra-abdominal infections?

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Abstract

Sepsis-3 definition introduces Quick SOFA (qSOFA) as a tool for identifying patients at risk of sepsis with a higher risk of hospital death both inside and outside critical care units. However qSOFA does not define sepsis and the new sepsis definitions recommend using an increase in the SOFA score of 2 points or more to represent organ dysfunction. The SOFA score, is potentially not accessible everywhere, especially for PaO_2, which would require an arterial blood gas measurement.

In order to validate a new practical sepsis severity score for patients with complicated intra-abdominal infections (cIAIs) including the clinical conditions at the admission (severe sepsis/septic shock), the origin of the cIAIs, the delay in source control, the setting of acquisition and any risk factors such as age and immunosuppression a prospective study was conducted around the world from October 2014 to February 2015.

The WISS study (WSES cIAIs Score Study) is a multicenter observational study underwent in 132 medical institutions worldwide during a four-month study period. The data from WISS study showed that mortality was significantly affected by the *old* sepsis definition. Mortality by sepsis status was: no sepsis 1.2%, sepsis only 4.4%, severe sepsis 27.8% and septic shock 67.8%. Early detection and timely therapeutic intervention improved the prognosis and overall clinical outcome of patients. Severe sepsis represented a reasonable approximation of the *tipping point* between stable and critical clinical conditions in management of patients with intra-abdominal infections.

In patients with complicated intra-abdominal infections, SIRS signs associated with abdominal signs screened patients needing immediate acute care surgery and *old* sepsis definition better recognized patients at earlier stages when the infective process is most treatable.

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Therapeutical Note

Sepsis is a complex, multifactorial syndrome, which can evolve into conditions of varying severity. If left untreated, it may lead to the functional impairment of one or more vital organs or systems.

Abdominal sepsis represents the host's systemic inflammatory response to bacterial or yeast peritonitis. Early recognition of patients with ongoing abdominal sepsis is an essential step for an effective treatment.

The third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3) has been published in 2016,[1,2] and updated previous classifications.[3,4]

The new definition of sepsis suggests that patients with at least 2 of these 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 (quick SOFA) may be prone having the poor outcome typical of sepsis and patients with positive qSOFA should be clinically characterized as septic by SOFA score.

Sepsis is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection. Organ dysfunction can be represented by an increase in the Sequential [Sepsis-related] Organ Failure Assessment (SOFA) score of 2 points or more. Septic shock should be defined as a subset of sepsis and should be clinically identified by a vasopressor requirement to maintain a mean arterial pressure of 65 mm Hg or greater and serum lactate level greater than 2 mmol/L (>18 mg/dL) in the absence of hypovolemia. The definition of severe sepsis is now superfluous.

Some concerns about the new definition of sepsis have been reported.[2] Since the first classification in 1991,[3] the definitions of sepsis, severe sepsis, and septic shock, though imprecise, have provided to clinicians a useful framework for clinical management, stressing the need for early recognition. The new definition of sepsis requiring the presence of organ failure has lost its predictive potential and may hinder the awareness of the importance of early recognition and treatment of sepsis, de-emphasizing intervention at earlier stages when it is most treatable and leading to a higher risk of delayed diagnosis.

Sepsis-3 definition introduces Quick SOFA (qSOFA) as a tool for identifying patients at risk of sepsis with a higher risk of hospital death both inside and outside critical care units. However qSOFA does not define sepsis and the new sepsis definitions recommend using an increase in the SOFA score of 2 points or more to represent organ dysfunction. The SOFA score, is potentially not accessible everywhere, especially for PaO_2, which would require an arterial blood gas measurement.

In order to validate a new practical Sepsis Severity Score for patients with complicated intra-abdominal infections (cIAIs) including the clinical conditions at the admission (severe sepsis/septic shock), the origin of the cIAIs, the delay in source control, the setting of acquisition and any risk factors such as age and immunosuppression a prospective study was conducted around the world from October 2014 to February 2015.

The WISS study (WSES cIAIs Score Study)[5] is a multicenter observational study underwent in 132 medical institutions worldwide during a four-month study period. 4533 patients with a mean age of 51.2 years (range 18-99) were enrolled in the WISS study. The data from WISS study showed that mortality was significantly affected by the *old* sepsis definition. Mortality by sepsis status was: no sepsis 1.2%, sepsis only 4.4%, severe sepsis 27.8% and septic shock 67.8%. Severity of illness and the inherent mortality risk escalated from no sepsis, through sepsis, severe sepsis and septic shock up multi-organ failure. Early detection and timely therapeutic intervention improved the prognosis and overall clinical outcome of patients. Severe sepsis represented a reasonable approximation of the *tipping point* between stable and critical clinical conditions in management of patients with intra-abdominal infections.

In patients with complicated intra-abdominal infections, SIRS signs associated with abdominal signs screened patients needing immediate acute care surgery and *old* sepsis definition better recognized patients at earlier stages when the infective process is most treatable.

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