

## Sepsis-3: How useful is the new definition?

The new definition of sepsis known as Sepsis-3 was announced at the 45<sup>th</sup> Critical Care Congress in the beginning of 2016. Sepsis is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection.<sup>[1]</sup> Organ dysfunction can be identified as an acute change in total SOFA score  $\geq 2$  points consequent to the infection. The baseline SOFA score can be assumed to be zero in patients not known to have preexisting organ dysfunction. A SOFA score  $\geq 2$  reflects an overall mortality risk of approximately 10% in a general hospital population with suspected infection. Even patients presenting with modest dysfunction can deteriorate further, hence the need for prompt intervention.

The work done by the task force appointed by SCCM (Society of Critical Care Medicine) and ESICM (European Society of Intensive Care Medicine) is commendable given the detailed analysis done on the pathobiology of sepsis with the statistical analysis of sensitivity and specificity of the existing criteria of sepsis. The SIRS criteria have been criticized for wide sensitivity and lack of specificity for sepsis (which is primarily induced by infection) while SOFA score has been enhanced as a diagnostic criterion for sepsis.<sup>[2]</sup>

However, we feel certain practical issues strike in the field of current clinical practice pertaining to the new definition. The 124 ICUs those participated in INDICAPS study used APACHE II and SOFA score.<sup>[3]</sup> But, no data is available regarding regular usage of illness severity score in Indian ICUs and hospitals.

As per the new definition, if SOFA score is mandated for diagnosing sepsis, training and orientation of medical and paramedical staff will be required. Also as SOFA score is not well known outside critical care community, it may be a challenge to acquaint the community physicians and non teaching hospitals with the new definition. Early warning signal (EWS) has been in use since 1999 in London to help ward staff identify when to call for specialist advice.<sup>[4]</sup>

The most interesting new addition is qSOFA score as a screening tool for identifying sepsis in out of ICU settings like emergency department, hospital wards and community health care settings. It is meant to identify adult patients with suspected infection and more likely to have poor outcomes typical of sepsis if they have at least 2 of the following clinical criteria.

- Respiratory rate of  $\geq 22$ /min or greater
- Altered mentation, (Glasgow Coma score  $\leq 13$ ) or
- Systolic blood pressure of  $\leq 100$  mm Hg.

These together constitute a new bedside clinical score termed quickSOFA (qSOFA). qSOFA is not a diagnostic criteria of sepsis, but a quick bedside screening tool. We believe the sepsis and possible sepsis bracket has been widened in contrast to other societies.<sup>[5]</sup>

qSOFA score will lead to identification of more number of cases of sepsis and possible sepsis.

In general terms this will diagnose more sick patients, but do not add in terms of management and outcome. Hence the resource limited health care settings in developing countries will still become more overburdened with number of sicker patients and ‘waiting to be sicker’ patients in terms of providing space and resources. This may lead to also overtreatment of this group of patients with further abuse of antibiotic policy.

It will be difficult to apply qSOFA to certain group of patients e.g., a case with hyponatremia with Na 110 meq/L with subclinical seizures will have altered sensorium and rise in respiratory rate with preserved normal blood pressure can be mistaken as sepsis in evolution as per qSOFA criterion.

Prognosis of such a case is certainly better than that with sepsis which as per new definition is life threatening organ dysfunction as a dysregulated host response to infection. qSOFA can also not and should not replace the MET call (Medical Emergency Team) or RRT (Rapid Response Team) criteria existing in various hospitals. It is an arduous and strenuous exercise to train paramedic staff in the wards and community settings to understand and follow protocols for handling such calls.

It will be not a very useful exercise to undo the current practice and teach a new tool (qSOFA) for identifying sick patients in out of ICU situations.

qSOFA actually appears as a shortened list of SIRS criteria. It seems we have switched from an existing criteria of high sensitivity to another set of criteria. The most useful aspect discussed in the consensus statement is awareness of new onset unexplained organ dysfunction and its possible association of infection and vice versa. The dark side is again over-usage of antibiotics perpetuating the cascade of multi-drug resistant organisms.

In summary, while we believe, the pathobiology of sepsis as a host response to infection with onset of organ dysfunction has been well discussed, the new definition still leaves the following apprehensions and deficiencies.

1. For sepsis related management and mortality the new definition does not seem to offer any extra benefit.

2. qSOFA will perhaps identify more sick patients which might overburden the already strained system in resource limited countries.
3. SIRS will still be useful for raising alarm and draw more attention than qSOFA. We better rely on a more broad sensitive tool for a disease or syndrome like sepsis than a more specific tool.
4. With SOFA guided organ dysfunction criteria for sepsis, diagnosis of sepsis may be late at certain levels of health care facilities in India and other developing countries.
5. Think of occult infection in cases of new onset unexplained organ dysfunction.
6. Abuse of antibiotic policy remains a constant and even more aggravated apprehension with use of qSOFA score.

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