Sepsis – where are we up to?

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It is quite common that we read about novel infections. We are all aware about the mortality secondary to ST elevation Myocardial Infarction which stands at around 8%. Meanwhile, sepsis is an old enemy that still kills many of our patients across the board. Mortality has remained high despite advances in pathobiology due to its complexity and heterogeneity with up to 10% for sepsis going up to 40% for septic shock.

Considerable changes in the 2001 definitions of Sepsis were published in the third international consensus definitions for sepsis and septic shock (Sepsis-3). The old definitions including SIRS (Systemic inflammatory response syndrome), Severe Sepsis and Septic Shock were found to be lacking in sensitivity and specificity while being too lax to allow consistency in gathering data. By using electronic health record data from patients admitted with infection it was possible to retrospectively evaluate the best tools to screen for sepsis *in patients with suspected infection* while aiming for simplicity.

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The management of sepsis remains essentially unchanged. The key is early recognition and treatment, as organ dysfunction can escalate quite rapidly and become potentially irreversible, with a sharp rise in mortality. The last update of the guidelines is from the 2015 Surviving Sepsis Campaign. This is neatly presented in two essential care bundles, the first within 3 hours and the second within 6 hours. The initial bundle includes the measuring of Lactate, administration of 30ml/Kg of crystalloid and appropriate broad spectrum antibiotics after taking blood cultures. Subsequently the patient should be reassessed for perfusion and volume status within 3 hours with repeat lactate adding vasopressors if deemed necessary and aiming for Mean Arterial Pressure (MAP) of >65mmHg. It is important to note that early central venous access has been removed from these care bundles as it has not been shown to add significant benefit.

The Sequential Organ Failure Assessment (SOFA) score was chosen for use in the intensive care setting with an increase of 2 or more points from baseline in a patient with suspected infection defining sepsis. This score needs only the commonly available clinical and laboratory data - platelet count, serum creatinine, GCS, arterial oxygen concentration, serum bilirubin and MAP. These can be easily calculated for every patient at this level of care. The tool chosen for use on the wards and prehospital settings is the quick SOFA (qSOFA) score that is simply 2 or more of: decrease in Glasgow Coma Scale (GCS) to below 15, respiratory rate above 22 breaths per minute and/ or a drop in systolic blood pressure below 100mmHg. The use of SIRS criteria such as fever, neutrophilia and tachycardia complements these tools in helping recognise suspected infection but are considered an adaptive response to infection rather than heralding sepsis. It is noted also that blood lactate has been omitted from these screening tools as it did not add much to their sensitivity or specificity. It remains however an essential tool for assessing perfusion and guiding therapy.

The updated definitions and clinical assessment tools may offer the advantage of earlier recognition of those at risk of sepsis though they are still being prospectively evaluated. The clear and specific definitions will provide better consistency for clinical trials and epidemiologic studies.

The use of these scores coupled with the early recognition and management of such a common pathology is essential in obtaining a better outcome in our patients. Furthermore these outcomes can be obtained without the need of many significant new resources.

Recommended Reading

1. Sepsis definitions and scoring systems: http://jamanetwork.com/journals/jama/fullarticle/2492881.
2. The 2015 update of the Surviving Sepsis campaign guidelines: https://www.sccm.org/Documents/SSC-Guidelines.pdf.

Cover Picture:
'To boldly go'
Oil on canvas with palette knife
By Victor Grech

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