New approached in the diagnosis of sepsis

Eiman Mokaddas
Kuwait University, Kuwait

Introduction: Sepsis is a fatal condition caused by body's immune system over-reacting to infection. It carries both high morbidity and mortality. Early diagnosis of sepsis can greatly reduce both.

Objectives: To evaluate the comparative performance of Verigene blood culture nucleic acid system to conventional techniques in the rapid diagnosis of sepsis by both identifying bacteria and their resistance markers.

Methods: All blood culture bottles showing Gram-positive cocci and Gram-negative bacilli were processed by Verigene according to the manufacturer's instructions and were cultured simultaneously by conventional methods for both ID as well as susceptibility using VitekII (Biomerieux, France).

Results: A total of 63 patients with Gram-positive sepsis and 63 patients with Gram-negative sepsis were included in the evaluation. Verigene system correctly identified all *stapylococci, streptococci and enterococci, Enterobacteriaceae* and *Pseudomonase euroginosa* compared to the conventional culture. It correctly identified 11 methicillin-susceptible Staphylococcus aureus (MRSA) and 15 methicillin resistant coagulase negative *staphylococci*. It correctly identified one MRSA, failed to identify 2 and falsely identified 2. It correctly identified 11 vancomycin sensitive enterococci. By rapid identification of staphylococci together with their resistance markers, vancomycin was de-escalated to cloxacillin in 11 patients and cloxacillin was escalated to vancomycin in 2 and all antibiotics were stopped in 14 patients. By rapid identification of Gram-negative bacteria, de-escalation and escalation from and to carbapenems occurred in 2 and 20 patients respectively.

Conclusion: Rapid molecular diagnosis of sepsis can greatly assist in the proper use of antimicrobial agents hens, helping the antimicrobial stewardship program.

e.mokaddas@HSC.EDU.KW

Notes: