SESSIONE 1 USO RAZIONALE ED APPROPRIATO DEI SISTEMI DIAGNOSTICI RAPIDI E DEI SAGGI SINDROMICI IN MICROBIOLOGIA CLINICA

DIAGNOSI EZIOLOGICA DELLA SEPSI: TECNOLOGIE, TAT E STEP APPROPRIATI

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Sepsis is a time-dependent infection associated with high morbidity and mortality. To obtain blood cultures (BC) for etiological diagnosis of sepsis is among the “one-hour bundle” of the Surviving Sepsis Campaign, together with the administration of broad-spectrum empiric therapy.

As many as 20%- 30% of septic patients receive inadequate empiric antimicrobial therapy, while effective antimicrobial early administration is crucial for patient survival. Thus, reducing time to pathogen identification and susceptibility is essential to improve patient outcome and a major goal for clinical microbiology.

The traditional approach to BC suffers from several limitations, including the long time-to-result, needing usually 24-48 h for pathogen growth and further 48 h for identification (ID) and antimicrobial susceptibility testing (AST) of isolated organisms. Different approaches are pursued to speed up laboratory results in the management of BC. Matrix Assisted Laser Desorption Ionization Time of Flight mass spectrometry (MALDI-TOF MS), directly from positive BC bottles, can provide a rapid ID, but not AST results. Rapid ID by MALDI-TOF MS and automated AST on short-term subculture on solid agar plates could represent a simple, standardized approach for faster and reliable results. Laboratory automation to process positive BC can significantly improve time-to-results, and can positively impact on the management of septic patients. Molecular methods, applied to positive BC, can accelerate ID of the most common, but not all, pathogens, and detect some resistance genes, but phenotypic AST is still necessary for tailored, directed treatment. Time-lapse microscopy has been shown to improve the turn-around times in the diagnosis of bloodstream infections, but it needs to be further improved to be routinely used in polymicrobial samples and in infections by multi-drug resistant gram-negatives.

In a modern and advanced laboratory, the goal is to implement the use of all new technologies in a coordinated and appropriate program of diagnostic stewardship, to guide therapeutic decisions, improve patient outcome, and facilitate antimicrobial stewardship programs.