P112

BATTERIOLOGIA

RAPID ANTIMICROBIAL SUSCEPTIBILITY TESTING FROM POSITIVE BLOOD CULTURES: A PERFORMANCE COMPARISON OF EUCAST RAST WITH THE BROTH MICRODILUTION METHOD.

V. Cortazzo [2], T. D'Inzeo [2], G. Menchinelli [2], B. Fiori [2], F. Ventriglia [2], B. Posteraro [1], M. Sanguinetti [2], T. Spanu [2]

[1]*Institute of Medical Pathology and Semeiotics, Fondazione Policlinico Universitario A. Gemelli IRCCS, Università Cattolica del Sacro Cuore Rome, Italy*

[2]*Institute of Microbiology, Fondazione Policlinico Universitario A. Gemelli IRCCS, Università Cattolica del Sacro Cuore, Rome, Italy*

INTRODUZIONE

Gram-negative bloodstream infections (BSIs) are associated with increased rates of treatment failure and poor outcome; a timely and reliable detection and identification of these pathogens and a rapid detection of the antibiotic susceptibilities are crucial to help physicians to quickly provide optimal targeted therapeutic treatment. With the worldwide spread of antibiotic resistance, delivering antibiotic susceptibility test (AST) results in a timely manner represents a major challenge. At the end of 2018, EUCAST has validated a method for performing a Rapid AST (RAST) directly from positive blood culture (BC) bottles.
The aim of our study is to evaluate the performance of RAST (4 and 6 hours of incubation) compared to the gold standard broth microdilution (BMD) method when Klebsiella pneumoniae or Escherichia coli are identified by MALDI-TOF.

METODI

The study was performed between July and August 2019 at the clinical microbiology laboratory of Policlinico A.Gemelli IRCCS. Analysis was prospectively carried out on 48 positive BCs that represented patient-unique BSI episodes, in which the presence of K. pneumoniae or E. coli was detected by MALDI-TOF mass spectrometry direct procedure. AST was performed using RAST, as described by EUCAST guidelines. Colony isolates derived from subculture of positive BC broth were then used for BMD testing. AST results were interpreted according to 2019 EUCAST appropriate breakpoints. Agreement of interpretative results was calculated.

RISULTATI

The overall categorical agreement between RAST (4h of incubation) and BMD was 61.6% (181/294), with rates for very major errors of 5.2% (3/58), major errors of 13.0% (30/230) and minor errors of 1.7% (5/294). Rate of not reliable results (i.e. when the inhibition zone diameter categorisation correspond to ATU) was 25.5% (75/294).
The overall categorical agreement between RAST (6h of incubation) and BMD was 76.5% (225/294), with rates for very major errors of 5.2% (3/58), major errors of 2.6% (6/230) and minor errors of 1.4% (4/294). Rate of not reliable results (i.e. when the inhibition zone diameter categorisation correspond to ATU) was 19.0% (56/294).

CONCLUSIONI

Based on these findings, the RAST system could be implemented in the laboratory sepsis diagnostic workflow and could be a valid support for the establishment of a targeted antimicrobial treatment on critical patient with bloodstream infections. Sample size must be increased and further studies are needed to evaluate RAST performances on other bacterial species.