

POSTER PRESENTATION

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Etiology of bacteremias associated with c-reactive protein, procalcitonin and lactate levels

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Introduction

Because of the high morbidity and mortality associated with bacteremia, prompt evaluation and adequate therapy are of paramount importance. The clinical manifestations of gram-positive and gram-negative bacterial infections are similar while biomarkers may be useful for the early diagnosis of the nature of a pathogen.

Objectives

The purpose of the study was to evaluate the association between the level of C-Reactive Protein (CRP), procalcitonin (PCT), and lactate and the etiology of bacteremia.

Methods

We studied the role of these biomarkers with clustered gram-positive and gram-negative bacteremia in patients hospitalized in Intensive care Unit over a period of 2 years (2011-2013), they were measured within the 24 hours after the onset of severe sepsis or septic shock. The PCT was analyzed by immunoassay (Vidas, Brahms)[®], lactate and CRP was measured in DIMENSION RXL - SIEMENS[®] and blood culture was made in BACTEC-9240[®] blood culture system (Becton Dickinson). The program used for the data processing and statistical analysis was SPSS 15.0[®].

Results

Our study included 396 patients, the median age of the study sample was 64 years old (inter-quartile range (IQR), 51-72), 60,6% were men, the main sources of infection were: respiratory tract (36%) and intra-abdomen (26%). In our series, APACHE II scores was 25 (IQR: 21-29.5), SOFA 10 (IQR: 7.75-11) and 24.8% of 28-day mortality. Blood cultures were realized in 316 patients (79.9%), 192 were

negative and 7 cases the result were fungi, 58.62% had bacteremia due to gram-negative bacteria and 41.38% due to gram-positive, with 43 isolations *Escherichia coli*, were the most frequently isolated bacterium followed by *Streptococcus pneumoniae* (16.43%) and *Enterobacteria* (14.29%).

In the gram-negative bacteremia group, CRP levels plasma were higher 261 [IQR: 173.19-311.53] mg/dL vs. 200.2 [159.5-287.75] mg/dL than in the gram-positive bacteremia group, however PCT concentrations were statistically significant higher in the gram-negative bacteremia 27.04 [IQR: 13.47-84.23] ng/mL vs. 11.79 [2.61-22.67] ng/mL; $p < 0.001$; as well as lactate levels 3.1 [IQR: 1.97-4.7] mmol/L vs. 2.45 [1.64-4.22] mmol/L; $p = 0.04$.

Conclusions

PCT and lactate showed differences between gram-negative and gram-positive bacteremia, might be helpful in the differentiation of pathogenic bacteremia and supposed the etiology before obtaining blood culture results.

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Reference

1. Brodská H, et al: Significantly higher procalcitonin levels could differentiate Gram-negative sepsis from Gram-positive and fungal sepsis. *Clin Exp Med* 2013, **3**:165-70.

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