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P2465 Cytokine production and outcome in MDR versus non-MDR Gram-negative sepsis

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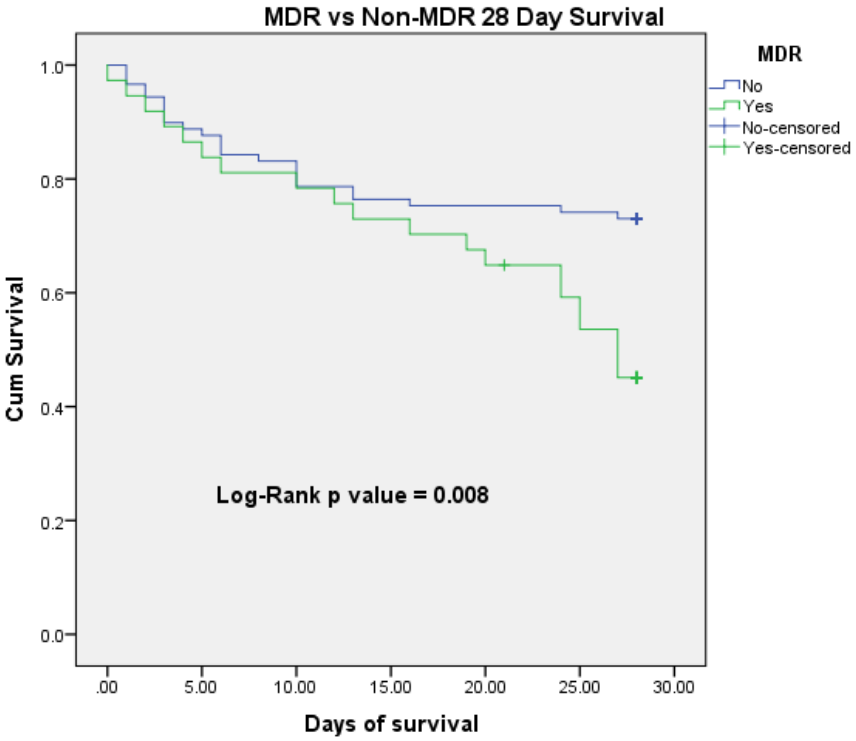
Background: Sepsis is a life-threatening syndrome accompanied by cytokine storm, caused by the interaction of the causative agent with the host immune system. Whether different cytokine production patterns are related to the susceptibility and type of the invasive micro-organism remains a matter of debate.

Materials/methods: A total number of 128 patients with sepsis and bacteremia, treated in ICU, were enrolled in the study. Exclusion criteria were the presence of malignancy, immunodeficiency and chronic treatment with corticosteroids. All patients were adults, and sepsis was diagnosed according to international definitions. Blood cultures and samples for measurement of angiopoietin-2, IL-6, IL-10, TNF-a, and sTREM-1 concentrations were acquired on admission. ELISA method was used for cytokine measurement. Epidemiological data, prognostic scores on admission, length of stay and 28-day survival were extracted from the Hellenic sepsis study group database.

Results: 90 patients suffered from non-MDR Gram (-) sepsis and 38 from MDR Gram (-) sepsis. The isolated bacteria were *Escherichia coli* in 80 patients (68 non-MDR vs 12 MDR), *Pseudomonas aeruginosa* in 24 patients (10 non-MDR, 14 MDR) and *Klebsiella pneumoniae* in 24 patients (12 non-MDR, 12 MDR). 82 patients suffered from urinary tract infection, 15 from lung infection, 9 from intrabdominal infection and 22 from primary bacteremia. The two groups didn't differ in age, Charlson Comorbidity Index, SOFA and APACHE score on admission. Serum TNF-alpha levels were significantly higher (58.6 ± 83 pg/ml vs 26.6 ± 35 pg/ml ; p=0.017) in non-MDR sepsis patients, while there was no significant difference between levels of the rest biomarkers. Patients with MDR gram (-) had more chances of an unfavorable outcome (OR 5.81; CI 2.1-16.1, P=0.001) and a significantly lower 28-day survival (p=0.008, log-rank test). In sub-group analysis there was no difference in survival between subjects with different microorganisms in MDR and Non-MDR group.

Conclusions: In the reported case series, there was no difference in cytokine levels on admission in patients with MDR versus non-MDR Gram(-) sepsis, with the exception of TNF-alpha levels. Although baseline characteristics and sepsis severity scores on admission between the two groups were not statistically different, MDR Gram(-) patients had higher mortality rates.


MDR vs Non-MDR 28 Day Survival
MDR
No
Yes
No-censored
Yes-censored
Cum Survival
1.0
0.8
0.6
0.4
0.2
0.0
Log-Rank p value = 0.008
.00
5.00
10.00
15.00
20.00
25.00
30.00
Days of survival