

EV0171

ePoster Viewing

Severe sepsis, bacteraemia & endocarditis

A proliferation-inducing ligand (APRIL) as a diagnostic biomarker of bacterial infection

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Background: Differential diagnosis of inflammatory disorders remains still a struggling issue in everyday practice. For now all parameters that are commonly used are not specific enough to be able to distinguish various inflammatory disorders. A new biomarker which could be used in these issues might be important especially in terms of introducing antibiotics. A proliferation-inducing ligand (APRIL) is a membrane binding protein that represents one of the main survival factors for immature, naive and activated B-cells, and is involved in all inflammatory responses.

The objective of this study was to determine whether serum levels of APRIL are higher in patients with bacterial infections than in other inflammatory disorders.

Material/methods: In this study we included 82 patients and 30 healthy blood donors and all serum samples were assayed for APRIL by enzyme linked immunosorbent assay (R&D Systems commercial kits). The 82 patients were split in three groups: group 1 included 35 patients with uncomplicated sepsis that has been microbiologically and/or radiologically proven; group 2 included 38 patients with B-cell malignancies; and group 3 included 29 patients with autoimmune inflammatory diseases (SLE and RA). The differences between groups were examined by non-parametric Kruskal-Wallis and Mann-Whitney test, considering the skewed distribution of APRIL.

Results: Results are shown in Table1. Kruskal-Wallis test showed that there is statistically significant difference between groups. The highest mean values of APRIL were found in patients with uncomplicated sepsis ($X=7,6143\text{ng/ml}$). Post hoc Mann-Whitney test showed that APRIL levels in the serum samples from patients with proven bacterial infection were significantly higher than APRIL levels in healthy controls and both other groups ($p=0.000$, $p=0.000$, $p=0.000$, respectively).

Conclusions: These results show that the activation of B-cells is stronger in bacterial infection than in other evaluated inflammatory disorders. Therefore, APRIL can be used to discern bacterial infections from other inflammatory disorders and can be helpful in making a decision whether or not we should start antibiotic treatment.

Table 1. APRIL concentrations in serum samples (ng/ml)					
	N	Mean	SD	Median	Range
Healthy controls	30	2.1667	0.54667	2.00	1.25-3.75
Uncomplicated sepsis	35	7.6143	6.17703	5.50	3.50-39.50
B-cells malignancies	38	1.7105	0.43312	1.75	1.00-6.25
Autoimmune inflammatory diseases	29	2.4224	2.31658	1.75	1.00-6.75