Abstract Submission

28. Iron metabolism, deficiency and overload

EHA-3046

GLYCOSYLATED FERRITIN MEASURING SIGNIFICANCE FOR SECONDARY HEMOPHAGOCYTIC SYNDROME DIAGNOSTICS

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Background: Hemophagocytic syndrome (HPS) is a clinicopathologic condition characterized by systemic inflammatory reaction with cytopenia and tissue damage. The HPS may be primary (genetic associated) or secondary (SHPS), caused by different systemic disorders (immune, infectious, neoplastic). The overall clinical symptoms are similar to sepsis, so it could be difficult to differentiate among these entities. Ferritin levels are high in both cases, but the glycosylated/nonglycosylated ferritin fractions ratio is seems to be indicative.

Aims: The estimation of the ferritin fractions ratio and biochemical profile in patients with sepsis and SHPS.

Methods: The data from 64 patients were analyzed: 40 pts with diagnosed SHPS (median age 57, range 8-74 years) and 24 with lethal septic shock (median age 57.5, range 18-82 years). SHPS in patients with persistent fever refractory to antibacterial therapy and/or prolonged cytopenia and/or organ (lungs, CNS) involvement was established after the other conditions had been excluded. Sepsis diagnostics was based on the confirmed infection site and systemic inflammation with multiorgan failure. The following serum values were analyzed: alkaline phosphatase (AlPh), alanine aminotransferase (ALAT), asparagine aminotransferase (ASAT), lactate dehydrogenase (LDH), bilirubin, creatinine, INR, C-reactive protein (CRP), procalcitonin (PCT), total ferritin, and glycosylated ferritin percentage. Mann-Whitney U test and ROC-analysis were used for statistical analyses.

Results: No differences were found in sepsis and SHPS for ALAT, ASAT, AlPh, LDH, and bilirubin levels. The difference of INR, CRP, PCT, creatinine levels was significant ($p<0.01$). The most substantinal difference in SHPS and sepsis groups had serum concentrations of ferritin, triglycerides, level of ferritin glycosylation ($p<0.01$) (Table 1).

According to ROC-analysis, the area under the curve for ferritin, triglycerides and percentage of ferritin glycosylation were 0.78, 0.82, and 0.92, respectively.

Image/Pictures:

	Dimension	median	25 quartile	75 quartile
Ferritin-SPHS	Ng/ml	7635	2863	13559
Ferritin –sepsis	Ng/ml	2163	1094.7	3940.5
Glycosylation ferritin – SPHS	%	21	10	33
Glycosylation ferritin - sepsis	%	40.1	33.7	55.9
Creatinine – SPHS	Mcmol/l	90	72	142
Creatinine – sepsis	Mcmol/l	186	126.5	302.5
Triglycerides – SPHS	Mmol/l	3.1	2.2	4.1
Triglycerides – sepsis	Mmol/l	1.38	0.75	2.37
C-reactive protein – SPHS	Mg/l	80.6	25.3	183
C-reactive protein – sepsis	Mg/l	214.5	185.9	287.5
Procalcitonin – SPHS	Ng/l	1.65	0.71	2.29
Procalcitonin – sepsis	Ng/l	55.9	38.9	198.35
International Normalized Ratio - SPHS		2.37	1.02	2.03
International Normalized Ratio - sepsis		1.73	1.47	2.4

Table 1. Significant laboratory differences ($p<0.01$), SPHS – secondary hemophagocytic syndrome.

Summary/Conclusion: The most difference between sepsis and SHPS was observed for triglycerides, ferritin and percentage of glycosylated ferritin. Percentage of glycosylated ferritin fraction seems to be the most indicative, which may make it useful for SHPS diagnostics and its differentiation from sepsis.

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Keywords: Ferritin, Glycosylation, Sepsis