Category :**Sepsis: biomarkers**

A273 - ***Predicting the outcome in chronical critical illness (cci) patients with health-associated infection (hai) by peptide array technology***

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Introduction:

HAI may complicate the course of CCI increasing ICU lethality. We hypothesize that outcome of CCI patients with HAI may associate with the adaptive immune system signature exhibiting increased and decreased responses to antigenic peptides. Our goal was to determine the feasibility of the use of randomly synthesized peptides for linking antibody signatures and outcome in CCI.

Methods:

Prospective cohort included 38 CCI patients admitted at neuroICU 32±27 days (M±SD) post stroke and 10 healthy volunteers (control). Hospitalization lasted for 50 ± 20.8 days. Sera samples prepared from blood withdrawn on the first 24 hrs on admittance were stored at -18 ^{o}C. After storage, 1 µl of sera were applied on >125 000 randomly synthesized 12-mer peptide microarrays (Biodesign Institute, Tempe, AZ, USA) and reactions were detected with Alexa Floor 647 labeled anti-IgG and laser scanner. Data analyzed using the BRB-ArrayTools software.

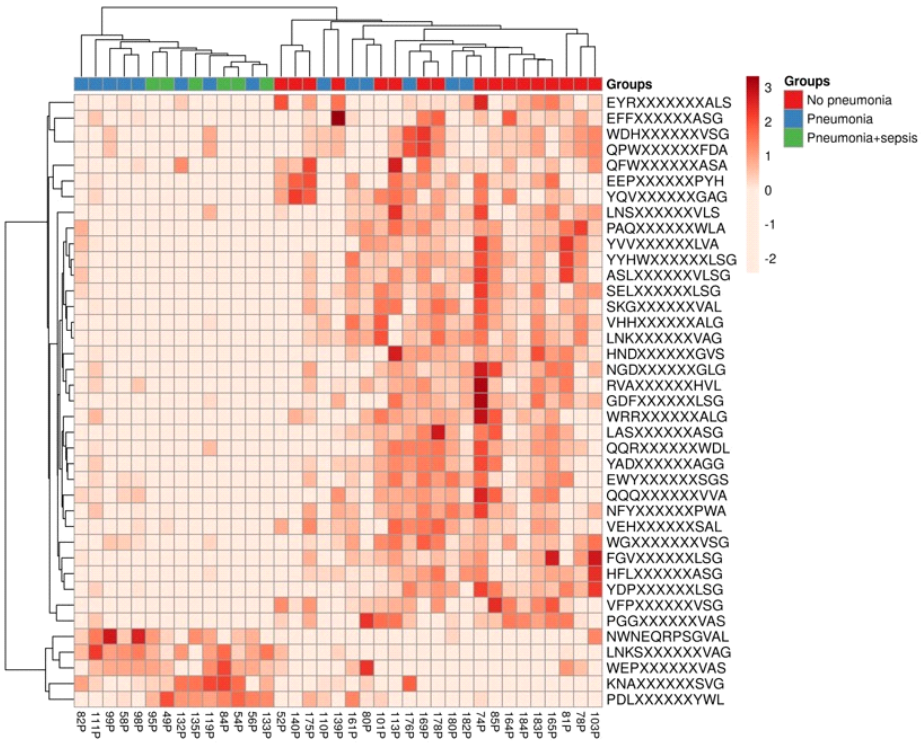
Results:

On admittance, patients exhibited 15 ± 8.2 scores on NIHSS and 13 ± 2.0 scores on Glasgow Coma Scale. Ten patients deceased during the study. Twenty patients developed severe pneumonia: Group 1 complicated with sepsis (SEPSIS-3, n=6, 1 patient survived) and Group 2 (pneumonia, no sepsis; n=14), with decreased lethality (P=0.002, Fisher exact test). Decreased and increased IgG responses to several peptides significantly discriminated patients from Group 1 vs. Group 2 and Group 1 patients vs. all other patients (P=0.019) or vs. control cohort. Results merit clinical validation of candidate immunosignatures followed by developing clinically relevant, simplified test format.

Conclusion:

Repertoire of epitope-specific IgG antibodies to >120 000 randomly synthesized peptides in CCI patients is discriminative for pneumonia vs. sepsis. Altered immunosignature may serve as an early predictive candidate biomarker of unfavorable outcome in CCI.

Image :



Immunosignature by epitope-specific IgG responses in chronic critical illness patients with and without health care-associated infection in ICU.