Category :**Sepsis: biomarkers**

A136 - ***Prognosis and selection of immunotherapy in bacterial sepsis and severe COVID-19 through clinical phenotyping: a cohort study***

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Introduction:

Patients with bacterial sepsis may be classified into 4 distinct clinical phenotypes. [1] Whether this classification may translate into a prognostic tool and treatment guidance is unclear. We aimed to extend and assess the usefulness of a simplified algorithm in phenotyping sepsis and severe COVID-19.

Methods:

We analysed a cohort of 1498 patients (620 with bacterial sepsis, 878 with severe COVID-19). Patients with bacterial sepsis were classified into phenotypes using a digital algorithm, based on 6 baseline parameters (creatinine, lactate, aspartate transaminase, bilirubin, C-reactive protein, International Normalized Ratio), as previously described [2]. All patients with severe COVID-19, included in an open-label immunotherapy trial (NCT04357366; NCT 04339712), were assessed during April to June 2020 and July to December 2020. All patients during the second period received dexamethasone. Stepwise Cox regression analysis with Acute Pathophysiology And Chronic Health Evaluation (APACHE) II as predefined variable was used to assess phenotype impact on 28-day mortality.

Results:

Phenotypes α and γ were most prevalent in bacterial sepsis (41.8% and 22.4% respectively); δ phenotype was associated with the highest mortality (Figure 1A). Phenotype α was seen in younger patients, mainly presenting pneumonia and respiratory failure. Phenotype assignement was an independent determinant of outcome (adjusted p: 0.007). Phenotype distribution and outcomes in severe COVID-19 were similar to those of bacterial sepsis (Figure 1B; adjusted p: 0.0023). Phenotypes α and γ displayed favorable response to anakinra ($p<0.001$), while phenotypes β and δ showed trend to imporvement with tocilizumab ($p=0.047$).

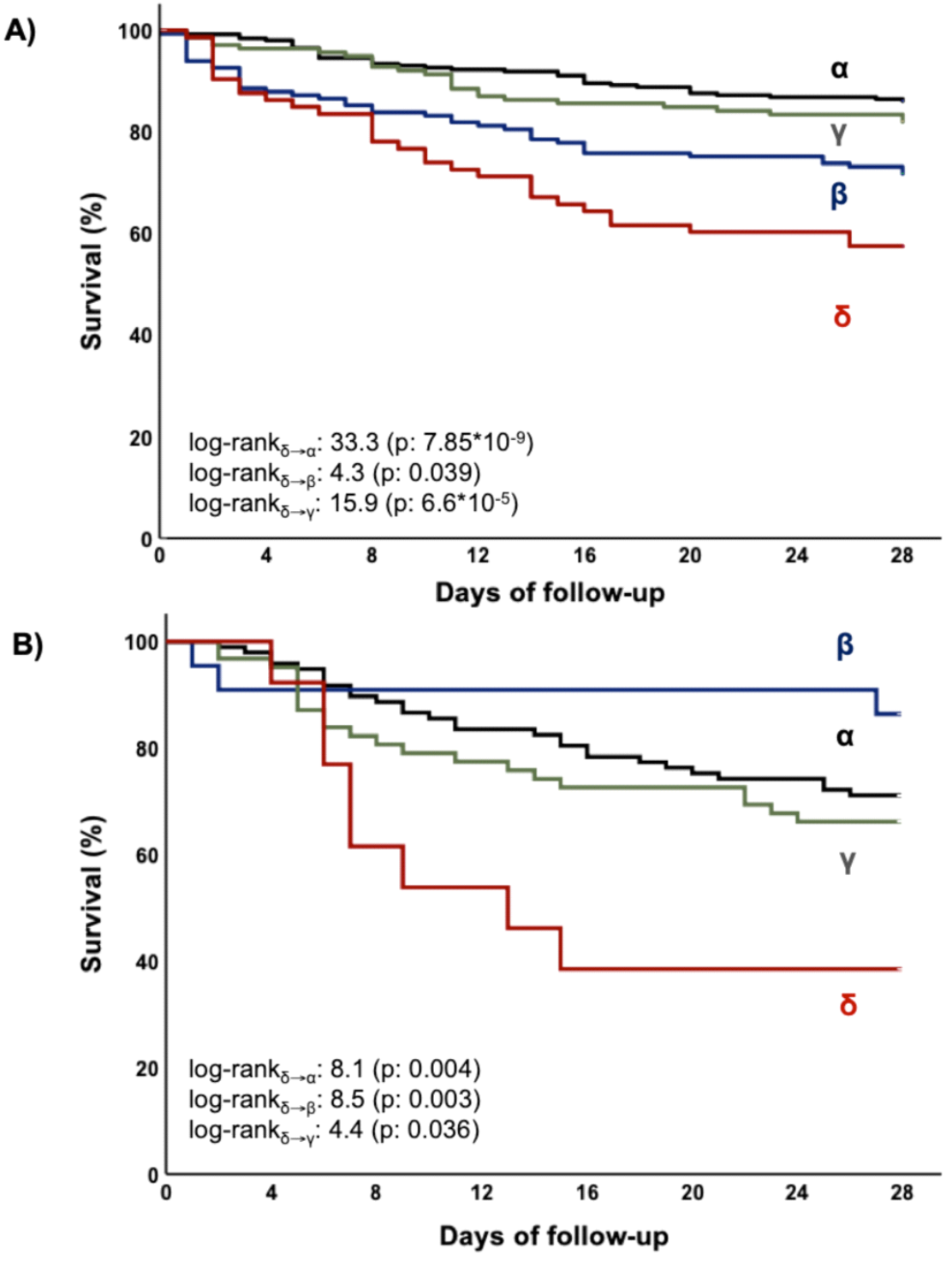
Conclusion:

A simple operational algorithm classified patients with sepsis in phenotypes and predicted outcome, independently of initial severity. This classification may guide treatment response in severe COVID-19.

References:

1. Seymour CW et al. JAMA 321:2003-17, 2019
2. Karakike E et al. Critical Care 24(Suppl 2): P589, 2020

Image :



28-day survival by clinical phenotype (α, β, γ and δ) among patients with A) bacterial sepsis and B) severe COVID-19