A549 - Heparin binding protein as an early diagnostic and prognostic tool in patients with suspected infection

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Introduction:
Heparin binding protein (HBP) is released from activated neutrophils upon stimulation of b2 integrins. This pro-inflammatory effect generates the hypothesis that it can be a sepsis biomarker for patients admitted at the emergency department (ED)

Methods:
The PROMPT study (ClinicalTrials.gov NCT03295825) took place at the ED of six Greek hospitals. Participants were admitted with suspected acute infection and at least one vital sign change. HBP was measured by an enzyme immunosorbent assay in plasma. Sepsis was diagnosed by the Sepsis-3 criteria. The primary study endpoint was the sensitivity for the diagnosis of sepsis. Outcome prediction was the secondary endpoint.

Results:
A total of 371 patients were enrolled; 166 had sepsis. The most common infections among patients without and with sepsis were upper respiratory tract infections in 30.2% and 1.2%; community-acquired pneumonia in 6.8% and 28.3%; and acute pyelonephritis in 9.3% and 28.3%. Median HBP was 24.0 and 32.7 ng/ml respectively (p: 0.027). Following analysis of the area under the curve (AUC) it was found that the best discriminatory cut-off for sepsis was 19.8 ng/ml. The comparative diagnostic performance of HBP versus qSOFA score is shown in Figure 1. The odds ratio for sepsis with HBP above 19.80 ng/ml was 2.07 (p: 0.001). At the same cut-off point the sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) for the prediction of early death after 72 hours was 100%, 35.7%, 4.1% and 100% respectively.

Conclusion:
HBP is more sensitive but less specific than qSOFA for the diagnosis of sepsis in the ED. The rule-out prediction of early death seems the great merit.

Image:
Figure 1