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Introduction:
Early identification of Sepsis adds a survival benefit in ICU patients. Several biomarkers have been evaluated, yet an optimal marker is still lacking.1

Methods:
We prospectively determined oxidative status in patients admitted in a general Intensive Care Unit of the University Hospital of Larisa. Oxidative status was determined measuring the novel static (sORP) and capacity (cORP) oxidation-reduction potential markers. Other biomarkers (BNP, presepsin, CRP) were measured, and the discriminative properties for the detection of sepsis were evaluated.

Results:
Oxidative status was evaluated in a hundred and fifty two consecutive patients. Patients with severe sepsis and septic shock had significantly higher sORP values than patients without sepsis (173.31± 20.44 vs 164.11±18.78, p=0.006), while cORP did not differ (0.34±0.31 vs 0.37±0.20, ns). Patients with cerebral damage had the lowest sORP on admission while surgical and medical patients had the highest sORP values (157.2 ±18.33 vs 174.04±18.1 respectively, p<0.001). sORP could predict the presence of sever sepsis (OR 1.107, p=0.009), along with presepsin (OR 1.002, p<0.0001), C-Reactive Protein values (OR 1.161, p=0.013) and Brain Natriuretic Peptide (OR 1.001, p=0.046). The best discriminating properties had presepsin (AUC 0.893, p<0.0001) and CRP (AUC 0.743 p<0.0001). The presence of a microorganism in blood or bronchial secretions could be predicted from the values sORP (AUC 0.633, p=0.042) and CRP (AUC 0.653, p=0.02)

Conclusion:
Oxidative status differs between patients admitted in the ICU and could serve as a prognostic marker for the presence of sepsis.

References: