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COMBINED ASSESSMENT OF PRESEPSIN (SCD14-ST) AND MORTALITY IN EMERGENCY DEPARTMENT SEPSIS (MEDS) SCORE IMPROVES OUTCOME PREDICTION OF SEPSIS

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BACKGROUND-AIM

Sepsis represents a common complication of patients in the emergency department (ED) and intensive care unit (ICU). The incidence is increasing going along with increasing admittance of outpatients suspicious for sepsis at the ED. Assessment of disease severity at the time of initial presentation could be helpful in the patient management as the mortality of severe sepsis or septic shock is 30 to 60% whereas the mortality of sepsis without organ failure remains below 10%. The aim of our study was to evaluate presepsin (PSEP) for assessment of disease severity and outcome prediction in comparison with the MEDS score.

METHODS

121 septic patients were included. Primary endpoint was death within 30 days. The combined endpoint “major adverse events” (MAE) consisted of at least either the primary or at least one of the secondary endpoints intensive care, mechanical ventilation or dialysis. MEDS score, PSEP, and procalcitonin (PCT) were determined at the time of initial presentation to the ED. PSEP was measured by use of the PATHFAST system which allows POC testing.

RESULTS

21 patients died and 34 patients exhibited MAEs during 30 day follow up. The number of decedents and patients with MAEs were 2 (3.2%) / 5 (8.1%), 8 (21.6%) / 15 (40.5%) and 11 (50.0%) / 14 (63.6%) in patients with sepsis (n=62), severe sepsis (n=37) and septic shock (n=22), respectively. Median values of MEDS score and PSEP in sepsis (n=62) were 8 and 738 ng/L compared to 11 and 1407 ng/L (p<0.0001) in severe sepsis or septic shock (n=59). 30-day mortality was 17.4 %, ranging from 0 % in the 1st to 43.3 % in the 4th quartile of presepsin concentration. ROC analysis revealed AUC values for MEDS score and PSEP of 0.851 and 0.810, respectively, compared to 0.549 of PCT. The logistic regression of combined MEDS score and PSEP regress revealed a AUC value of 0.909. Similar results were found regarding MAEs.

CONCLUSION

MEDS score and PSEP demonstrated strong relationship with disease severity and outcome in patients with sepsis in the ED. The combined assessment of MEDS score and PSEP provided a significant higher predictive value than both markers alone. The PATHFAST system allows early determination of PSEP from whole blood in the ED in addition to MEDS score and may improve the management of sepsis.