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Management, early markers and prognostic factors in sepsis and septic shock. Retrospetive study from 2014 to 2017 in the Emergency Department of the University Hospital of Padua.

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Background

Despite the development of the Surviving Sepsis Campaign (SSC) guidelines, mortality in sepsis and septic shock is unacceptably high. Sepsis affects 20-30 million people in the world, 1 in 4 does not survive. Aim of study is to identify possible early markers, prognostic indicators of severity and mortality and analysis of global intra-hospital mortality.

Patients, methods and data collection

It is a retrospective observational study that includes 386 patients ≥16 years old that arrive in Emergency Department of the Hospital of Padua between 1 January 2014 and 31 December 2017 with diagnosis of "sepsis", "severe sepsis" or "septic shock" according to ICD-9 coding. The patients are admitted in Internal Medicine (MI) or in Intensive Care Unit (TI). The data were obtained from qLIK View database, from Galileo database and the DEA folders of the Hospital of Padua for the collection of medical history, blood tests and other informations about hospitalization. The data were entered into an EXCEL sheet and analyzed with the Sas 9.4 program (SAS Institute Inc., Cary, NC, USA) for Windows. A comparison analysis of the characteristics of the subjects admitted in Internal Medicine and Intensive Care was performed. The distribution of qualitative characteristics has been reported as number and percentage, while quantitative characteristics are reported as median, minimum and maximum. A univariate logistic regression was performed for each of the potential predictors of mortality. The predictors statistically significant results at the 5% level were inserted into multivariate logistic regression model with stepwise backward selection.

Results

Emergency doctors admitted in TI younger patients (<75 YI) and patients with 0-1 comorbidities. In MI patients had more comorbidities such as cardiomyopathies, liver disease, pulmonary disease.

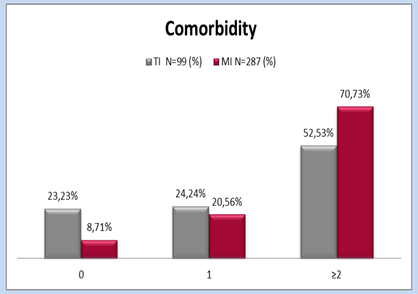

Figure 1: comorbidity

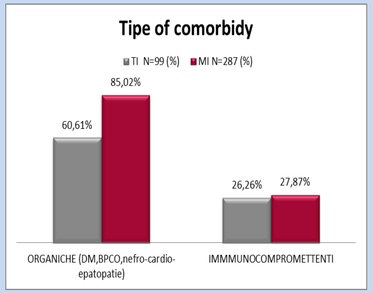

Figure 2: tipy of comorbidity

Patients admitted to TI were significantly more hypotheses and tachycardic than those admitted to MI [systolic blood pressure (PAS) 90 mmHg in TI vs 110 mmhg in MI, heart rate (FC) 110 bpm in TI vs 105 bpm in MI] and with a shock index (SI) of 1.2 in TI vs 0.9 in MI.

The evaluation of other vital parameters and laboratory test, including protein C reactive, procalcitonin, leucocytes and qSOFA did not show a statistically significant difference in the choice of the hospitalization department.

In ED microbiological tests and antibiotic therapy (73.68% in TI vs 31.36% in MI p<0001) were established early in patients admitted in TI, although it did not seem that these were associated with a better prognosis in the univariate analysis. Amines administration in ED is statistically significant (52.22% in TI vs 6.62% in MI p<0001) and they are prognostic indicators of severity and mortality.

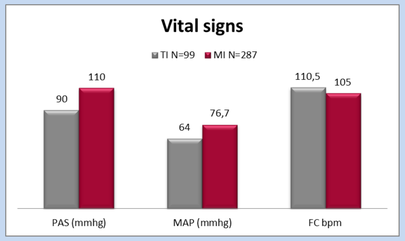

Figure 3: vital signs

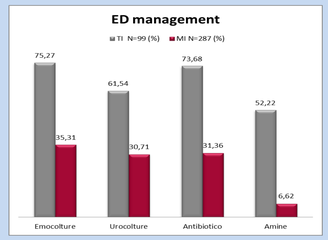

Figure 4: ED management

The multivariate analysis showed the most significant predictors of mortality are gravity color code assigned to triage in ED (cod/col) rosso vs bianco+verde [OR 10.537 IC 95% (2.969-37.397), p <0001], lactates >4 vs <=4 [OR 2.440 IC 95% (1.163-5.119), p=0.0184] and SI >=0.7 vs <0.7 [OR 3.978 IC 95% (1.069-14.807), p=0.0395].

Parametri	MULTIVARIATA OR (IC 95%)
Codice colore G vs B+V R vs B+V	 2.575 (0.628 10.556) 10.537 (2.969 37.397)
Lattati ≥4 vs <4 mmol/l	2.440 (1.163 5.119)
Shock Index ≥0.7	3.978 (1.069 14.807)

Table 1: multivariate analysis

Conclusions

Clinical evaluation and hemodynamic instability factors (systolic blood pressure, Shock Index) are important in the choice of the department of hospitalization. Hemodynamic instable patients receive more emo-urocolture, antibiotic therapy and vasoactive amines in ED before being admitted to TI. In the study of global mortality lactates, SI and cod/col are predictors of mortality and this reflects the data from the literature.