Compliance with the sepsis care resuscitation bundles is associated with decreased mortality in patients with septic shock

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Introduction

The purpose of the study was to describe the effectiveness of the Surviving Sepsis Campaign (SSC) bundles with regard to both implementation and outcome in patients with septic shock.

Methods

A single-centre prospective observational study of patients admitted to the medical–surgical ICU with septic shock. Patients were admitted from September 2005 to March 2007. After an educational program, implementation of the SSC Resuscitation Bundles (RB) and Management Bundles (MB) was accomplished.

Results

We analyzed 186 consecutive patients. Global hospital mortality was 43%. The rate of compliance with the RB was 36%. The compliance rate with the MB was only 20%. When the influence of age, severity, emergency department origin, and ICU admission delay was controlled by multivariate analysis, compliance with the RB was independently associated with survival (OR = 0.42, 95% CI = 0.20–0.89, $P = 0.02$). We only found differences in mortality between C and NC groups in four bundle elements: serum lactate measured before 6 hours (36.5% vs 56.7%; $P < 0.01$), early broad-spectrum antibiotics (31.1% vs 51.4%; $P < 0.01$), mean arterial pressure ≥ 65 mmHg before 6 hours (36.3% vs 60.8%; $P < 0.01$), and treatment with activated protein C when

indicated (20% vs 59.5%; $P < 0.01$). In the multivariate analysis, activated protein C, complete RB, age, SOFA score, and mechanical ventilation were associated independently with mortality. Compliance rates with RB during three consecutive 6-month time periods were 33.3%, 43.1% and 27.9%, respectively; inhospital mortality rates in those periods were 41.7%, 35.4% and 52.5%, respectively ($P = 0.14$). Compliance with the MB decreased from 26.1% (first period) to 8.7% (third period).

Conclusion

Implementation of the RB was associated with decreased mortality in patients with septic shock. However, compliance with the SSC bundles decreased in the third period of study, making us alert to the need to continue the efforts to keep the SSC active and updated. The poor adherence to management bundles probably shows the many uncertainties that remain within this group of interventions.

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