



ORIGINAL

Epidemiology and prognostic factors in severe sepsis/septic shock. Evolution over six years[☆]



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KEYWORDS

Severe sepsis;
Septic shock;
Epidemiology;
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Mortality

Abstract

Objective: To determine the clinical characteristics and prognostic factors of patients with severe sepsis/septic shock admitted to the Intensive Care Unit of Donostia University Hospital (Guipuzcoa, Spain).

Design: A prospective, observational study was carried out during a consecutive 6-year period (1st February 2008–31st December 2013).

Setting: The Intensive Care Unit of Donostia University Hospital, the only third level hospital in the province of Guipuzcoa, with a recruitment population of 700,000 inhabitants.

Results: Number of patients with severe sepsis/septic shock has progressively increased over the last years to reach 1136 patients, yet significant changes in age, sex, Acute Physiology and Chronic Health Evaluation II, procalcitonin and lactate values could not be observed. In the last years, admission rate from Emergency Department has increased in comparison to admissions from hospitalization ward, with a higher incidence of urological sepsis. Hemodynamic and renal dysfunctions have been the most prevalent disorders, respiratory involvement and thrombocytopenia have gone down while coagulopathy has increased significantly. Mortality has decreased significantly. We have performed a multivariate analysis of the early prognostic factors. Type, origin, sepsis etiology, lactate and the presence of organ dysfunction—except for hyperbilirubinemia and hypotension—were the most important mortality factors.

Conclusions: Severe sepsis and septic shock result in growing ICU admissions. Although clinical features have barely changed over the last years, we have observed a decrease in mortality. We find important knowing these early prognostic factors to improve the management of these patients.

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PALABRAS CLAVE

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Epidemiología y factores pronósticos de la sepsis grave/shock séptico. Seis años de evolución**Resumen**

Objetivo: Examinar las características clínicas y los factores pronósticos de los pacientes ingresados por sepsis grave/shock séptico en la Unidad de Cuidados Intensivos del Hospital Universitario Donostia.

Diseño: Estudio observacional prospectivo durante un período consecutivo de 6 años (1-2-2008 a 31-12-2013).

Ámbito: Servicio de Medicina Intensiva del Hospital Universitario Donostia, único hospital terciario de Guipúzcoa.

Resultados: El número de pacientes con sepsis grave/shock séptico ha aumentado progresivamente hasta un total de 1.136, sin observarse cambios significativos en la edad, el sexo, la puntuación del Acute Physiology and Chronic Health Evaluation II, los valores de procalcitonina ni en los de lactato sérico. En los últimos años ha habido un aumento significativo de los ingresos desde Urgencias respecto a los procedentes de planta, con una mayor incidencia de la sepsis urológica. La afectación hemodinámica y renal han sido las disfunciones más prevalentes, descendiendo la afectación respiratoria y la trombocitopenia y aumentando la coagulopatía. La mortalidad ha descendido significativamente. Mediante un análisis multivariante analizamos factores pronósticos precoces: el tipo de paciente, su procedencia, la etiología de la sepsis, la cifra de lactato y la presencia de disfunciones orgánicas, exceptuando la hiperbilirrubinemia y la hipotensión, fueron las variables más influyentes en la mortalidad.

Conclusiones: La sepsis grave/shock séptico genera un creciente número de ingresos. A pesar de que las características clínicas han variado poco en los últimos años, hemos observado un descenso de la mortalidad. Consideramos importante el conocimiento de los factores pronósticos precoces para mejorar el abordaje de estos pacientes.

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Introduction

Sepsis results in important morbidity and mortality, particularly when associated to organ dysfunction and/or shock. The Surviving Sepsis Campaign was launched in the year 2002 with the aim of reducing the mortality of sepsis through the development and introduction of clinical practice guides, published for the first time in 2004¹ and last revised in 2012.² Different studies have shown that adherence to these guides,^{3,4} and particularly early antibiotic administration, improves patient survival.⁵ In Spain, the Edusepsis study^{6,7} made it possible to know the clinical characteristics and epidemiological data of these patients in our country, and demonstrated that the application of an educational program is able to increase compliance with the treatment “bundles” and lessen mortality in severe sepsis/septic shock (SeS/SSH). The ABISS-Edusepsis study was subsequently carried out (with results pending publication) with the purpose of evaluating a multiple intervention for improving early empirical antibiotic treatment in sepsis, with the aim of reducing patient mortality.

In our case, participation in both of the mentioned studies allowed us to develop a registry and conduct educational campaigns in our center and in the different district hospitals that refer patients to our hospital. Through data collection over these 6 years, we aimed to determine the existence of possible variations in the characteristics and evolution of these patients, and to identify early prognostic

factors capable of helping us to improve their clinical management.

Material and methods

A prospective observational study was made over a 6-year period (from 1 January 2008 to 31 December 2013) in the Intensive Care Unit (ICU) of Donostia University Hospital (San Sebastián, Spain). Our Unit belongs to a third-level hospital and has 48 beds, with a total recruitment population of 700,000 inhabitants.

We included all patients who upon admission to or during their stay in the ICU presented SeS/SSH according to the definitions of the International Sepsis Conference of 2001.⁸ In all cases follow-up was carried out until hospital discharge.

Study variables:

- Demographic data: patient age, gender and origin.
- Patient type and origin of sepsis.
- Data on the severity of the condition: Acute Physiology and Chronic Health Evaluation II (APACHE II score) (in all patients, except those who died in the first 24 h), organ dysfunction secondary to sepsis, presence or absence of hypoglycemia, procalcitonin peak (100 ng/ml being the maximum value offered by the laboratory), and lactate in the first 6 h of sepsis onset or of admission to the ICU.

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