



## ORIGINAL

# A prospective, observational severe sepsis/septic shock registry in a tertiary hospital in the province of Guipuzcoa (Spain)<sup>☆</sup>

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### KEYWORDS

Severe sepsis;  
Septic shock;  
Epidemiology;  
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### Abstract

**Objective:** To determine the epidemiological and clinical characteristics of the patients with severe sepsis/septic shock admitted to the Intensive Care Unit (ICU) of Donostia Hospital (Guipuzcoa, Spain), analyzing the prognostic factors and comparing them with the existing data at national level.

**Design:** A prospective observational study was carried out during a consecutive 3-year period (1 Feb. 2008–31 Dec. 2010).

**Setting:** The ICU of Donostia Hospital, the only third level hospital in the province of Guipúzcoa, with a recruitment population of 700,000 inhabitants.

**Results:** In the course of the study period, 6263 patients were admitted to our department: 2880 were non-coronary patients, and 511 suffered a severe sepsis or septic shock episode upon admission or during their stay in the ICU. Males predominated (66.5%), the mean age was 63 years, and the mean Acute Physiology And Chronic Health Evaluation II (APACHE II) score was 21. Most cases were medical (68%) and were admitted from hospital wards (53.5%). The most frequent origin was pneumonia (24%). The great majority of the cases (73%) corresponded to septic shock. Hemodynamic alterations were the most frequent disorders, followed by renal and respiratory impairment. Noradrenalin was used as vasoactive drug in all shock patients; over one-half required mechanical ventilation (MV), and one-third required continuous venous–venous hemodiafiltration (CVVHDF). Interventions frequently used in the management of these patients comprised blood cultures or corticosteroid use, while other measures such as activated protein C were little used. The mortality rate in the ICU was 20.8%, with a mean stay in the Unit of 14 days. The parameters associated to mortality in the multivariate analysis included the presence of hypoglycemia, respiratory dysfunction, the need for MV, lactic acid elevation and thrombocytopenia in the first 24 h, together with an origin of sepsis either in the ICU or in the hospital.

**Conclusions:** Severe sepsis is frequent in our unit, generating important morbidity and hospital stay, as well as high mortality. The epidemiological and clinical characteristics of our patients are similar to those described globally at national level. Considering our data in complying with the different treatment measures, it is clear that there is still room for improvement.

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**PALABRAS CLAVE**

Sepsis grave;  
Shock séptico;  
Epidemiología;  
Manejo clínico;  
Mortalidad

## Registro observacional y prospectivo de sepsis grave/shock séptico en un hospital terciario de la provincia de Guipúzcoa

**Resumen**

**Objetivo:** Conocer las características epidemiológicas y clínicas de los pacientes con sepsis grave/shock séptico ingresados en la unidad de cuidados intensivos del Hospital Donostia, analizar factores pronósticos y compararlos con los datos existentes a nivel nacional.

**Diseño:** Estudio observacional prospectivo durante un periodo consecutivo de 3 años (1 de febrero de 2008–31 de diciembre de 2010).

**Ámbito:** Unidad de cuidados intensivos (UCI) del Hospital Donostia, único hospital de tercer nivel de la provincia de Guipúzcoa, que atiende a una población de 700.000 habitantes.

**Resultados:** A lo largo de este periodo, 6.263 pacientes ingresaron en nuestro servicio; 2.880 fueron pacientes no coronarios y 511 presentaron al ingreso o en su evolución en UCI, un episodio de sepsis grave o shock séptico. Hubo un predominio de varones (66,5%), con una edad media de 63 años y *Acute Physiology And Chronic Health Evaluation II* (APACHE II) medio de 21. La mayoría fueron de tipo médico (68%), procedentes de planta de hospitalización (53,5%) y el origen más frecuente fue la neumonía (24%). La gran mayoría (73%) presentó shock séptico. La afectación hemodinámica fue la más frecuente, seguida de la renal y respiratoria. En todos los pacientes con shock se utilizó noradrenalina como vasopresor, más de la mitad requirieron ventilación mecánica (VM) y un tercio, hemodiafiltración venovenosa continua (HDFVVC). En el manejo de estos pacientes hubo medidas con aplicación elevada como la realización de hemocultivos o el uso de corticoides pero otros de escasa aplicación como la proteína C activada. La mortalidad en UCI fue del 20,8%, con una estancia media intra-UCI de 14 días. Las variables asociadas a la mortalidad en el análisis multivariante incluyen la presencia de hipoglucemia, la disfunción respiratoria, necesidad de ventilación mecánica, hiperlactacidemia y presencia de trombocitopenia en las primeras 24 horas junto con el origen de la sepsis en UCI o intrahospitalaria.

**Conclusión:** La sepsis grave es una afección frecuente en nuestra unidad, genera elevada morbilidad y tiempo de estancia hospitalaria, además de una alta mortalidad. Las características epidemiológicas y clínicas de nuestros pacientes son similares a las referidas a nivel nacional. Teniendo en cuenta nuestros datos en el cumplimiento de las diferentes medidas de tratamiento, es evidente que quedan aspectos que mejorar.

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**Introduction**

Sepsis is characterized by important morbidity–mortality, especially when associated to organ dysfunction and/or shock. In Spain, the reported incidence of severe sepsis is 104 per 100,000 inhabitants/year, with a mortality rate of 20.5%, while the incidence of septic shock is 31 per 100,000 inhabitants/year, with a mortality rate of 45.7%.<sup>1</sup> The Surviving Sepsis Campaign (SSC) was launched in the year 2002 with the purpose of reducing mortality due to sepsis through the development and implementation of clinical practice guides.<sup>2</sup> In Spain, the Edu-sepsis project,<sup>3,4</sup> in which we participated, reaffirmed the importance of educational campaigns for the implementation of guides, and afforded further data on the prevalence and mortality of this disease at national level. After participating in that study, we decided to create a database of our own, with the following objectives:

- To determine the impact of severe sepsis in our ICU, which belongs to the only third-level hospital center in Guipúzcoa and attends over 90% of all critical patients in our province.
- To analyze prognostic factors.

- To compare our results with those reported in other studies, particularly at national level.
- To determine our degree of compliance with the clinical guides and identify those aspects which must be improved.

**Material and methods**

A prospective observational study was carried out over a period of 35 consecutive months (from 1 February 2008 to 31 December 2010), involving those patients with septic shock/severe sepsis upon admission to the ICU or who developed septic shock/severe sepsis during their stay in the ICU, in accordance with the definitions of the International Sepsis Definitions Conference of 2001.<sup>5</sup>

Our ICU has 48 beds and belongs to the only third-level hospital center in the province of Guipúzcoa, with a recruitment population of 700,000 inhabitants. It is the only critical care unit in the province equipped with extracorporeal filtration techniques.

The variables analyzed included the following:

- Demographic data: patient age, gender, type and origin.
- Origin of sepsis.

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