



Original article

Short- and long-term prognosis of critically-ill patients referred to the ICU from the Emergency Department of a tertiary hospital[☆]



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ABSTRACT

Background and objective: A frequent source of critically-ill patients admitted to the ICU is the Emergency Department. It is essential to analyze the short-term prognosis of these patients, but also their evolution after their discharge from the hospital, since this is one of the major concerns of these patients. The aim of this study is to describe the epidemiological characteristics of patients admitted to the ICU from the Emergency Department and to analyze their outcome.

Patients and method: This consisted of an observational prospective cohorts study which included 269 Emergency Department patients consecutively admitted to the ICU over an 18-month period. Factors associated with hospital mortality were presented as an odds ratio (OR) and factors associated with long-term mortality were presented as a hazard ratio (HR). A *P*-value lower than .05 was accepted as significant. The overall survival was analyzed on the basis of the Kaplan–Meier curves.

Results: Hospital mortality was 15%, ICU complications where the variables with the greatest impact on short-term mortality: acute renal failure (OR 22.7) and respiratory distress syndrome (OR 51.2). After hospital discharge, the cumulative mortality at 12, 24 and 36 months was 6, 11 and 15%, respectively. The degree of functional dependence (HR 3.7), cancer (HR 3.4) and arrhythmias (HR 2.4) were factors related to long-term mortality.

Conclusions: The short-term outcome of ICU patients is related to age and comorbidity, but more significantly to the characteristics of the acute illness. However, the long-term outcome is more closely associated with the patients' characteristics.

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Pronóstico a corto y largo plazo de los pacientes críticos ingresados en la Unidad de Cuidados Intensivos desde el Servicio de Urgencias de un hospital terciario

RESUMEN

Antecedentes y objetivo: Un origen frecuente de los pacientes que ingresan en la UCI es el Servicio de Urgencias. Es necesario analizar el pronóstico a corto plazo de estos pacientes, pero también su evolución tras el alta hospitalaria, puesto que es una preocupación importante de los enfermos. Nuestro objetivo es describir las características epidemiológicas de los pacientes que ingresan en la UCI desde Urgencias y analizar su evolución.

Palabras clave:

Servicio de Urgencias

Cuidados intensivos

Mortalidad hospitalaria

Mortalidad a largo plazo

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Pacientes y método: Estudio de cohortes observacional y prospectivo. Incluye 269 pacientes ingresados consecutivamente en la UCI desde Urgencias durante 18 meses. Los factores asociados a la mortalidad hospitalaria se presentan en *odds ratio* (OR) y a la mortalidad a largo plazo como *hazard ratio* (HR). El nivel de significación aceptado fue del 5%. La supervivencia global se analizó mediante curvas de Kaplan–Meier. **Resultados:** La mortalidad hospitalaria fue del 15%, las complicaciones desarrolladas en la UCI fueron las variables con mayor impacto en la misma: insuficiencia renal aguda (OR 22,7) y distrés respiratorio (OR 51,2). Tras el alta hospitalaria, la mortalidad acumulada a los 12, 24 y 36 meses fue del 6, 11 y 15%, respectivamente. El grado de dependencia funcional (HR 3,7), el cáncer (HR 3,4) y las arritmias (HR 2,4) fueron los factores relacionados con la mortalidad a largo plazo.

Conclusiones: El pronóstico a corto plazo de los pacientes que ingresan en la UCI se relaciona con su edad y comorbilidad, pero sobre todo con las características de la enfermedad aguda. Sin embargo, la evolución a largo plazo está más asociada a las características del paciente.

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Introduction

In recent years, both the demand and the number of seriously ill patients who are treated in hospital emergency services (HES)¹ are on the increase and therefore, these services have become one of the main referral sources of critically ill patients admitted to intensive care units (ICU).

Despite the improvement in therapeutic options that intensive medicine offers these patients, hospital mortality remains constant, between 14% and 44% depending on the series.^{2,3} In addition, after discharge from hospital, patients who required ICU admission are associated with increased morbidity and an increased need for health care resources, as well as with a lower long-term survival compared to the general population.^{4–6} Therefore, the analysis of the impact of intensive care in the health of patients should not only include short-term prognosis, it should also analyze the progression of patients beyond hospital discharge.

The amount of follow-up time required and the starting point of the same has not been clearly defined in the long-term survival analysis of patients admitted to ICU. Thus, the available studies show long-term survival figures that vary substantially depending on whether they use the time of ICU admission or discharge, or hospital discharge as the measurement's starting point.^{7,8} Probably, if hospital discharge was used as a reference and patients who die at an early stage as a result of the initial severity of the disease are not included in the assessment of long-term prognosis, we will have a more homogeneous cohort of patients and a set of characteristics that are more similar to the rest of the population, which will allow us to draw conclusions in terms of long-term survival.^{8–10}

Therefore, based on mortality, the level of investment made and the importance of HES as the source of patients who require ICU admission, local epidemiological studies that describe the profile and the progression of severely ill patients visiting the different HES would be necessary.

The aim of this study is to describe the epidemiological characteristics of a cohort of patients admitted to the ICU of a high complexity hospital from HES, assess their short and long term survival and analyze the factors associated with this survival.

Patients and method

Study design

It is a non-interventional observational cohort study that analyses, prospectively, the evolution of a cohort of patients admitted to a general ICU from the emergency department of a tertiary hospital. The general ICU of our hospital is a medical-surgical unit of 17 beds, of which 14 are allocated to acute care patients and 3 to

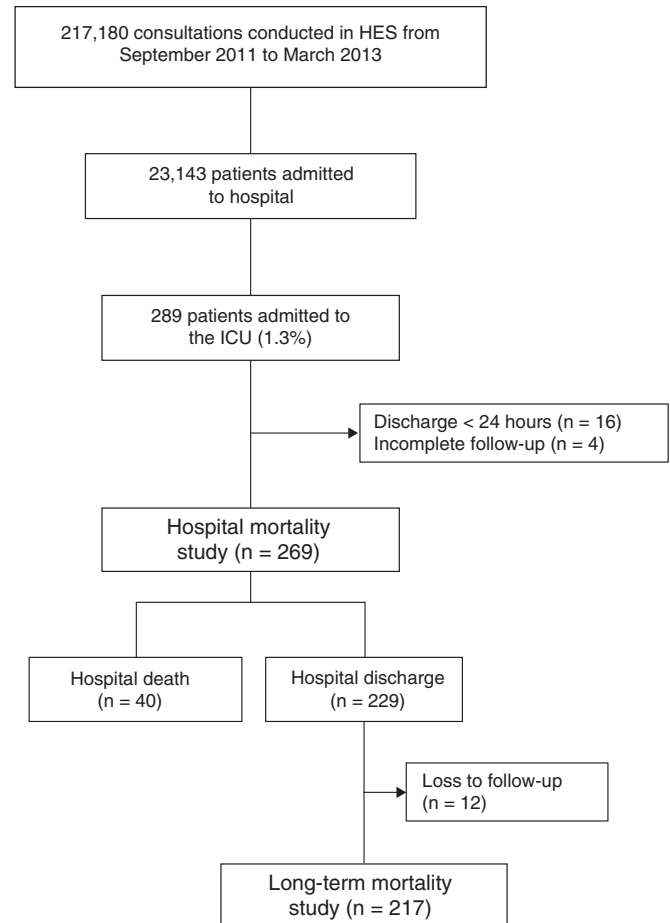


Fig. 1. Diagram of the study.

intermediate care. The Emergency Department is composed of a main unit with 37 beds, an observation unit with 40 beds and a consultation area.

The study diagram is shown in Fig. 1. In a first phase, patient hospital admission was studied and variables associated with hospital outcome were analyzed. A follow-up of patients who were discharged alive from the hospital was subsequently performed and the variables associated with the long-term progression were analyzed. This follow-up ended on 30th March 2016. The study was approved by the local Ethics Committee and did not require obtaining an informed consent, given its non-interventionist nature.

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