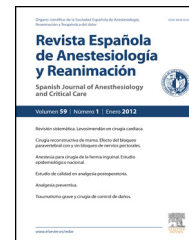


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ORIGINAL

Long-term admission to the intensive care unit: a cost-benefit analysis

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KEYWORDS

Long-stay patients;
Intensive care;
Cost;
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Abstract

Objective: To assess outcomes in long-term ICU patients, with follow-ups carried out at one year post discharge, in order to calculate the costs incurred by the hospital in relation to the benefits gained.

Material: Of 3639 patients consecutively admitted over the course of three years to ICU, 235 (6.5%) were assessed for the purposes of the study, having spent a period exceeding 20 days in intensive care.

Method: The survey tool used was the Spanish Minimum Data Set (MDS). The length of ICU stay and hospital stay following discharge from ICU were calculated, and one year post discharge the patient/next of kin was contacted in order to carry out a follow-up survey on survival and functional status (according to GOS-E scale).

Results: The 235 study patients had a mean stay of 37 days, occupied 34% of ICU beds available and consumed 29% of the ICU's economic resources (\$14,400,175). Their stay on hospital wards was (mean) 33 days. Mortality in ICU and on hospital wards was 40% higher amongst older patients, and those with a higher APACHE II and Charlson index score. Mortality rates were three times higher among neurosurgical patients: mortality at follow-up was 25%, and only 21% recovered an acceptable functional status.

Conclusions: Mortality rates in long-term ICU patients are high, both during their hospital stay and in the first year post discharge. Surviving patients do not exhibit a good level of recovery, and consume a large proportion of economic resources.

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PALABRAS CLAVE

pacientes de larga duración;
Cuidados intensivos;
Costes;
Mortalidad;
Estado funcional después del alta

Ingresos de larga duración en la unidad de cuidados intensivos: análisis de costo-beneficio

Resumen

Objetivo: Evaluar los resultados de los pacientes de larga duración en la UCI por medio de un seguimiento al año del alta a fin de calcular los gastos soportados por el hospital en relación con los beneficios obtenidos.

Materiales: de los 3.639 pacientes consecutivos ingresados en la UCI durante tres años, se evaluó a 235 (un 6,5%) para el presente estudio, todos ellos con una estancia superior a 20 días. **Métodos:** el instrumento de evaluación fue la base de datos española CMBD (conjunto mínimo de base de datos). Se calcularon la duración de la estancia en la UCI y en la planta después del alta de la UCI y, un año después del alta hospitalaria, se contactó con el paciente o su pariente más próximo para realizar una encuesta de seguimiento sobre su estado funcional (según la escala GOSE).

Resultados: los 235 pacientes estudiados estuvieron ingresados un promedio de 37 días, ocuparon un 34% de las camas disponibles en la UCI y emplearon un 29% de los recursos económicos de dicha unidad (14.400.175\$). Su estancia media en planta fue de 33 días. La mortalidad en la UCI y en planta fue un 40% más alta en los pacientes de mayor edad, puntuación del APACHE II e índice de Charlson. Las tasas de mortalidad se triplicaron en los pacientes neuroquirúrgicos. En el seguimiento después de un año, la tasa de mortalidad fue del 25%, y únicamente el 21% recuperó un estado funcional aceptable.

Conclusiones: las tasas de mortalidad en pacientes de larga duración en la UCI son altas, tanto durante la estancia hospitalaria como durante el año posterior al alta. Los pacientes de larga duración no presentan una recuperación correcta y consumen una gran proporción de recursos económicos.

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Introduction

The quality of resources currently available to intensive care services permits the treatment and survival of patients suffering from increasingly more serious and complex conditions.

However, the main condition together with the failure of other associated organs often prolong the stay of patients in our units, and just as morbidity and mortality levels rise, so do the care and treatment costs involved. Financed by state taxes, the Spanish Healthcare System is free, and practitioners may use all available resources in their particular healthcare setting, according to their professional criteria.

Healthcare expenditure in Spain accounts for 8.4% of Gross National Product (GNP) (54.4% of which is hospital-based expenditure). The average expenditure in relation to GNP in the EU is 9.6% (OECD Health Data, 2008). Currently, life expectancy in Spain at birth is 81 years.

According to some sources, the resources used in the critical care setting consume 15% of the hospital budget.¹ In the USA, critical care accounts for 0.7% of GNP.²

The aim of this study is to investigate mortality in patients who remain in the Intensive Care Unit for over 20 days. The study focuses on survivors, following up their progress from the ICU to hospital wards and up to discharge. To determine survival rates and functional status, patients were followed-up one year after discharge from the ICU.

The hospital administration provided the researchers with details of the cost of caring for these patients, both in the ICU and hospital wards.

Patients and methods

Design

An observational, longitudinal, descriptive study using data from patients admitted over a 3-year period to a multi-purpose ICU at a tertiary-level hospital.

The study was approved by the Independent Ethics Committee of the Hospital Virgen de la Salud in Toledo.

Materials

The study was carried out in the Toledo Hospital Complex in Spain, which comprises two large hospitals and several specialist outpatient clinics. The complex has 777 beds with 26 ft multi-purpose ICU beds (3 beds exclusively for scheduled surgery patients).

Data from patients admitted in 2010, 2011 and 2012 for a period exceeding 20 days were analyzed. We considered 20 days to be a prolonged period; however, others have applied different criteria in defining what may be considered a long-term patient, and have suggested hospital stays of anything between 7 and 30 days.³⁻⁵

Virgen de la Salud Hospital is a regional centre of excellence for neurosurgery. It also boasts a coronary unit and cardiac surgery resuscitation unit that are independent of the main ICU where the study was carried out. Over the 3 years studied, 3639 patients were admitted, of which 235 (6.5%) were hospitalized for more than 20 days (Fig. 1).

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