



ORIGINAL

Brain death organ donation potential and life support therapy limitation in neurocritical patients[☆]



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KEYWORDS

Life support therapy limitation;
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Abstract

Objective: To analyze the profile, incidence of life support therapy limitation (LSTL) and donation potential in neurocritical patients.

Study design: A multicenter prospective study was carried out.

Setting: Nine hospitals authorized for organ harvesting for transplantation.

Patients: All patients consecutively admitted to the hospital with GCS < 8 during a 6-month period were followed-up on until discharge or day 30 of hospital stay.

Study variables: Demographic data, cause of coma, clinical status upon admission and outcome were analyzed. LSTL, brain death (BD) and organ donation incidence were recorded.

Results: A total of 549 patients were included, with a mean age of 59.0 ± 14.5 years. The cause of coma was cerebral hemorrhage in 27.0% of the cases. LSTL was applied in 176 patients (32.1%). In 78 cases LSTL consisted of avoiding ICU admission. Age, the presence of contraindications, and specific causes of coma were associated to LSTL.

A total of 58.1% of the patients died ($n = 319$). One hundred and thirty-three developed BD (24.2%), and 56.4% of these became organ donors ($n = 75$). The presence of edema and midline displacement on the CT scan, and transplant coordinator evaluation, were associated to BD.

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LSTL was associated to a no-BD outcome. Early LSTL (in the first 4 days) was applied in 9 patients under 80 years of age, with no medical contraindications for donation and GCS ≤ 4 who finally died in asystole.

Conclusions: LSTL is a frequent practice in neurocritical patients. In almost one-half of the cases, LSTL consisted of avoiding admission to the ICU, and on several occasions the donation potential was not evaluated by the transplant coordinator.

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PALABRAS CLAVE

Donación de órganos;
Limitación
tratamiento de
soporte vital;
Muerte Encefálica;
Potencialidad

Potencialidad de donación de órganos en muerte encefálica y limitación del tratamiento de soporte vital en los pacientes neurocríticos

Resumen

Objetivo: Analizar el perfil, la incidencia de limitación de tratamiento de soporte vital (LTSV) y la potencialidad de donación de órganos en pacientes neurocríticos.

Diseño: Multicéntrico prospectivo.

Ámbito: Nueve centros autorizados para extracción de órganos para trasplante.

Pacientes: Todos los pacientes ingresados en el hospital con GCS < 8 durante 6 meses fueron seguidos hasta su alta o hasta 30 días de estancia hospitalaria.

Variables de interés: Datos demográficos, causa del coma, situación clínica al ingreso y evolución. Incidencia de LTSV, muerte encefálica (ME) y donación de órganos.

Resultados: Se incluyó a 549 pacientes. Edad media $59,0 \pm 14,5$. El 27,0% de los comas fueron por hemorragias cerebrales.

Se aplicó LTSV en 176 pacientes (32,1%). En 78 casos consistió en no ingreso en la UCI. La edad, presencia de contraindicaciones y determinadas causas del coma se asociaron a LTSV.

Fallecieron 319 pacientes (58,1%); 133 fueron ME (24,2%) y el 56,4% de ellos fueron donantes de órganos ($n = 75$). Edema y desviación de la línea media en la TAC y la evaluación previa por el coordinador de trasplantes se asociaron a ME. La LTSV se asoció a no evolución a ME. Nueve pacientes de menos de 80 años, sin contraindicaciones para donación y con un GCS ≤ 4 fueron limitados en los 4 primeros días y fallecieron en asistolia.

Conclusiones: La aplicación de LTSV es frecuente en el paciente neurocrítico. Casi la mitad de LTSV consistió en el no ingreso en unidades de críticos y, en ocasiones, sin evaluar su potencialidad como donante por la coordinación de trasplantes.

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Introduction

In a serious attempt to homogenize donation programs throughout the world, The third World Health Organization (WHO) Global Consultation on Organ Donation and Transplantation, held in Madrid (Spain)¹ called upon governments to advance toward self-sufficiency in transplantation, and thus to cover the needs of patients using all the resources available to increase organ availability. Despite the many initiatives to increase the number of organ donors, further effort is needed in this field, since there is a constant and growing need for organs for transplantation. Although the total deceased solid organ donors reached 1655 in Spain in 2013 (a figure similar to those of previous years),² the number of patients on the waiting list for organ transplantation has remained stable or has even increased in recent years.

Up until now, most organs for transplantation in Spain have come from patients who die in hospital under conditions of brain death (BD).³ Brain death has been estimated to represent 2.3% of all in-hospital fatalities and 12.4% of

all deaths in the Intensive Care Unit (ICU).⁴ Although these indicators are based on retrospective analyses of deaths occurring in critical care settings, they serve as a reference for calculating donation potential in our centers. The quality assurance program of the Spanish National Transplant Organization (*Organización Nacional de Trasplantes*, ONT), designed to determine the donation potential of critical care units (based on internal and external audits that evaluate the ultimate circumstances in which patients die in such units), retrospectively identifies the "losses" of potential donors not identified by the transplant coordinators in real time, and helps to define areas for improvement in the audited hospitals. These audits show that the number of donors could be 21.6% greater if all potential donors were identified (i.e., patients with a clinical condition suggesting compliance with BD criteria)⁵ and all possible losses were avoided.

In order to estimate the BD donation potential, other authors have considered it more appropriate to analyze the number of patients admitted in coma to the ICU,⁶ and even to hospital,⁷ since certain decisions referred to diagnosis

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