

SPECIAL ARTICLE

Emergency department staff and the organ donation process: recommendations from the joint working group of the National Transplant Organization and the Spanish Society of Emergency Medicine (ONT-EMSBDS)

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Although 4769 transplants were performed in Spain in 2015 and the organ donor rate reached 39.7 per million population, thousands of patients remain on wait lists. Currently 65% of donors die from strokes and the mean donor age is 64 years. This profile calls for strategies to detect candidates outside the intensive care unit (ICU) and it justifies an ever stronger role for the participation of emergency services in the procurement process. Spain's National Transplant Organization (ONT) and the Spanish Society of Emergency Medicine (SEMES) have drafted recommendations whose purposes are to define the responsibilities of emergency staff in this process, to establish protocols for multidisciplinary cooperation that facilitate the identification of candidate donors, and to consolidate a new approach to patient care that will facilitate optimal management of the donor prior to ICU admission.

Keywords: Tissue and organ procurement. Transplants. Hospital emergency health services. Emergency health services.

El profesional de urgencias y el proceso de donación. Recomendaciones del grupo colaborativo ONT-SEMES

Aunque en 2015 se realizaron en España 4.769 trasplantes y la tasa de donación alcanzó los 39,7 donantes por millón de población, miles de pacientes siguen a la espera de un trasplante. El perfil actual de los donantes en muerte encefálica (el 65% fallece por accidente vascular cerebral y su edad media es de 64 años) justifica las estrategias para su detección fuera de las unidades de cuidados intensivos y la creciente participación de los servicios de urgencias y emergencias en el proceso de donación. La Organización Nacional de Trasplantes (ONT) y la Sociedad Española de Medicina de Urgencias y Emergencias (SEMES) han redactado estas recomendaciones con el objetivo de definir la responsabilidad de los profesionales de urgencias y emergencias en el proceso de donación, establecer unas pautas de trabajo multidisciplinar que favorezcan la detección de posibles donantes y consolidar un nuevo concepto asistencial que permita el manejo óptimo del posible donante hasta su ingreso en la unidad de cuidados intensivos.

Palabras clave: Donación. Trasplante. Servicios de urgencias hospitalarios. Servicios de emergencias.

Introduction

The consolidation of the quality assurance program, launched by the National Transplant Organization (ONT) in 1999, allows continuous assessment of the donation process in intensive care units (ICU), identifying areas for improvement to design and implement specific corrective actions and subsequently assess their impact¹. Given that this methodology of analysis is limited to ICUs, in 2008 the 40 donors per million population Strategic Plan defined as a fundamental line of action the detection of potential donors outside the ICU. The integration of emergency medical services (EMS) and hospital emergency departments (EDs) in the donation process is part of this line of improvement and constitutes the main route of increasing donation rates in brain death (BD)^{2,3}.

The needs derived from our waiting lists and the resolutions taken in Madrid at the 3rd World Health Organization Global Consultation on Organ Donation

and Transplantation, which called for progress towards self-sufficiency in transplantation, have prompted a change in the attitude and the dynamics of many centers, so that it is increasingly more common to raise the possibility of organ donation before BD is declared^{4,5}.

EMS and EDs daily treat patients with severe neurological disease requiring urgent attention and rapid decision making. In some cases, due to severity and, above all, irreversibility, these patients are not indicated for medical or surgical treatment. However, they may be considered as possible donors, that is, neurocritical patients with a high probability of progressing to BD if appropriate measures are applied with the sole objective of carrying out the donation^{6,8}.

It is essential that the detection of these potential donors is part of ED medical care, which should involve both the transplant coordination team and the ICU in order to decide in an agreed manner the course of action to be followed in each case. The Bench-marking

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Guideline (2011) included in its "Recommendations to improve effectiveness in referral of the potential donor to critical units" the need to implement an action protocol aimed at identifying patients with severe brain damage, early communication and the management of the resources of the ICU to facilitate their assistance^{2,9-11}.

Recently, different initiatives have made it possible to quantify the magnitude of the situation. One is the multi-center study carried out in 2012 by the ONT collaborative group and the Spanish Society of Emergency Medicine (SEMES) in which 28 hospitals from 10 autonomous communities participated. This study allowed identifying in a semester 543 possible donors treated in the ED where the donation option was only considered in 8% of the cases, although 62% presented a Glasgow Coma Score (GCS) below 8 points. Ninety-nine per cent of potential donors were patients younger than 80 years of age, without medical contraindication, in whom donation was not considered in the ED and died outside the ICU. Likewise, in terms of ED potential for donation, it was found that 8% of emergency deaths and 16% of hospital deaths occurring within 72 hours of admission are possible donors (results pending publication).

The European ACCORD study identified this real potential of the ED as a place to detect potential donors and has highlighted that prejudices often hinder the process (especially in relation to age and comorbidities). According to the analysis of data from Spain, 28% of potential donors are never reported to the transplant coordinator, because they are not considered as potential donors, and only 8% of potential donors enter the ICU with the sole objective of donation (results pending publication).

It follows then that EDs can play a key role in the donation process by identifying potential donors. To do this, their existence must be communicated early to the transplant coordination team and to the ICU professionals, to assess their appropriateness as donors and inform the relatives in an appropriate way (truthful, adequate and comprehensible)^{7,12-19}.

Objectives of the recommendations

- Define the participation and responsibility of the ED professionals in the process of donation in BD.
- Define the functions of the transplant coordinator in the emergency donation process.
- Define multidisciplinary work patterns that favour the detection of possible donors in EMS and EDs and facilitate their admission to the corresponding ICU.
- Consolidate a new care concept, with the specific objective of optimizing the management of possible donors.

Recommendations

In order to comprehensively address the role of

emergency professionals in screening potential donors, the recommendations in this guide are structured in three areas:

- I. Identification of potential donors in the ED and early communication to professionals in the transplant coordination team.
- II. Communication and information to relatives or representatives of the possible donor.
- III. Definition of models integrating emergency professionals in the transplant coordination team.

I. Identification of potential donors in the emergency department and early communication to the transplant coordination team

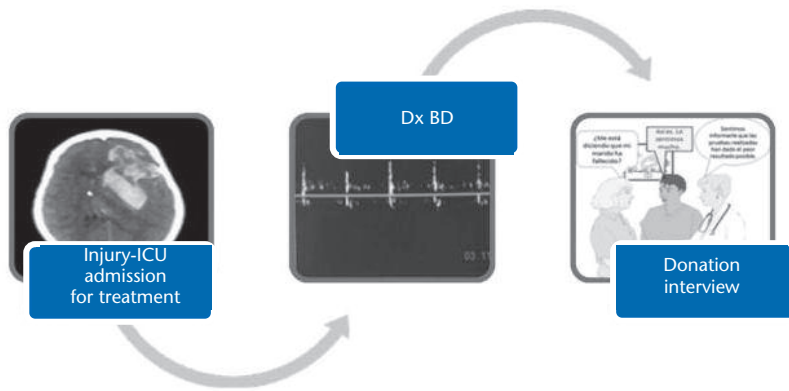
Since the detection of potential donors in ED is the starting point of the donation process, and therefore the main limiting factor (no detection = no donation), the involvement of ED professionals is crucial.

The detection of potential donors should be integrated into the service portfolio of these units and be part of the health care work of ED practitioners⁹. The patient who is identified as a possible donor is one who, because of his/her acute neurological disease and poor life expectancy, is not considered for any type of treatment because it is futile²⁰. This futility is the key deciding factor about whether, in end-of-life care, the donation option is appropriate. If, in addition, it is an option that the patient had consented to, it should be respected and facilitated whenever feasible. The early detection of a possible donor and the incorporation in very early stages of the transplant coordinator in both the decision-making process and the communication with families results in a higher rate of acceptance and greater effectiveness of the donation. It also means initiating all appropriate measures whose objective is to improve the viability of organs for transplantation. Multidisciplinary preparation and implementation of a hospital protocol for the detection of possible donors in the ED and EMS is key to defining fundamental aspects of the donation process.

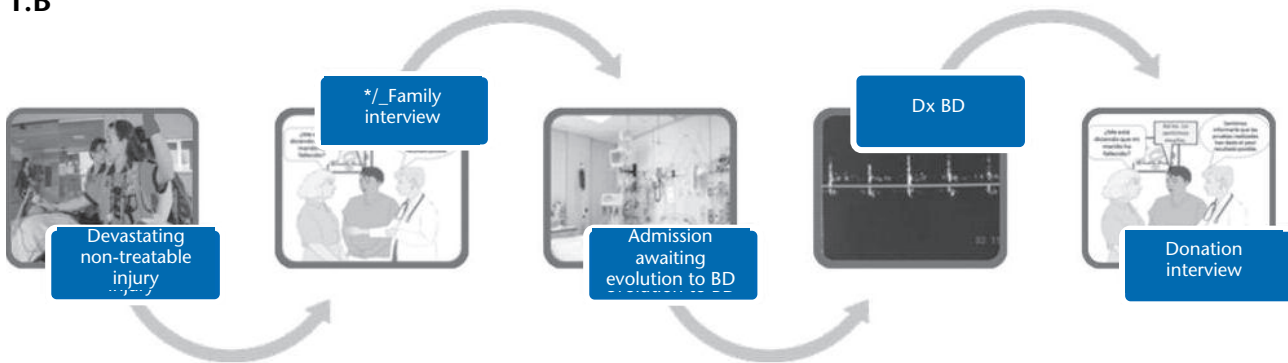
1. Which patient can be considered a possible donor?

Any patient with a devastating neurological injury of known cause, with an unfavourable vital prognosis and for whom any treatment has been rejected on the grounds of therapeutic futility (interdisciplinary decision that must be taken by caregivers) can be considered a possible donor. In order to structure the donation process in clinical practice, three scenarios can be defined (Figure 1). In the usual sequence in the process of donation in BD (Figure 1a), the patient is admitted to the ICU for treatment and the evolution is unfavourable, BD is confirmed and the possibility of donation is broached with the family. In the ED, we often have a patient who has been treated by EMS with advanced life support measures (mechanical ventilation, vasoactive drugs, etc.) and then declared futile given the poor vital prognosis (Figure 1b). On other occasions (Figure

1.A



1.B



1.C

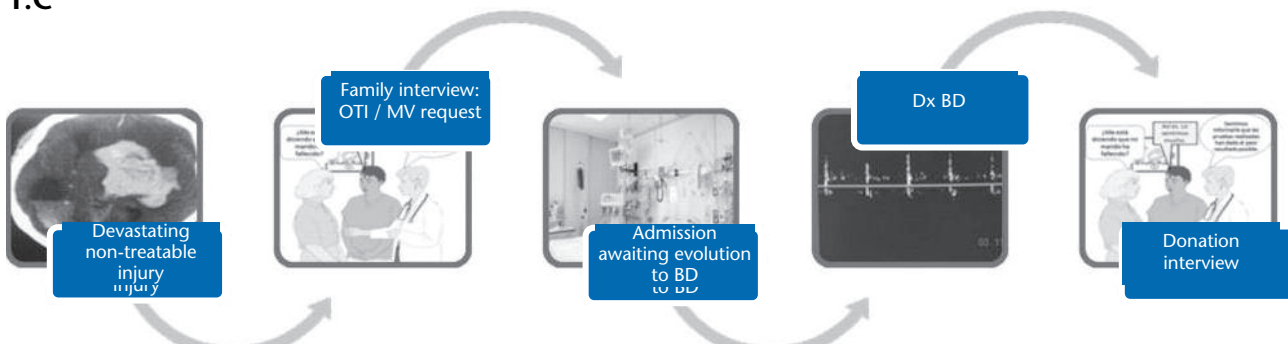


Figure 1. Possible scenarios of the donation process. 1A. Scenario 1 (intensive care unit, ICU): the donation process begins after the diagnosis of BD. 1 B. Scenario 2 (hospital emergency department): identification of a possible donor in whom life support measures have been initiated. 1 C. Scenario 3 (hospital emergency department): identification of a possible donor in whom life support measures have not been initiated. Scenarios 2 and 3 require a previous donation interview (see text). Dx: diagnosis; BD: brain death; IOT / VM: orotracheal intubation / mechanical ventilation.

1c), emergency professionals attend patients (usually elderly, with suspected severe vascular neurological pathology and $GCS \leq 8$)¹⁶ who arrive at the hospital without previous life support; if life expectancy is zero, it is easier to make treatment limitation decisions.

For these two scenarios, once the decision is taken to terminate life support measures (TLSM) on the grounds of futility, the ED professional must con-

sider the possibility of donation and communicate the existence of this patient to the transplant coordinator. The coordinator will be responsible for initially assessing the appropriateness of the donation and the likelihood that the patient will evolve to BD and therefore be a potential donor. The transplant coordinator, with the participation of the ED professional, will approach the family and discuss the possibility of

continuing with treatment measures (scenario 2) or initiating treatment measures (scenario 3) exclusively for the purpose of donation, so that the reason for ICU admission will be exclusively as a possible donor. As will be explained later, this implies a different approach to the process of donation with relatives, making a first request for authorization to maintain measures of life support for a certain time (prior interview)^{15,21-24}.

2. What contraindicates the donation?

There is no age limit for donation and therefore advanced age does not preclude the possibility of donation. The absolute contraindications for donation are very few: positive serology for HIV and infectious-contagious pathology of unknown origin or for which effective treatment has not been established.

The existence or previous history of malignant neoplasm implies individualized assessment. All other pathological antecedents and comorbidities should be evaluated individually. Pluripathology is not a cause of exclusion *a priori*.

3. Who can start the donation process?

The doctors and nurses of the ED and EMS responsible for care of the patient care can initiate the process. The donation process must be integrated into the culture of hospital professionals so that any professional who identifies a potential donor is able to activate the system.

4. When to activate the donation process?

Any patient with the following characteristics is considered a possible donor and must be notified to the transplant coordinator:

- GCS ≤ 8.
- Irreversible structural damage to the central nervous system (CNS).
- No medical or surgical therapeutic option

5. How to start the donation process?

The algorithm of identification and early communication of the existence of a possible donor in the ED is shown in Figure 2. It is advisable to define for each center a simple and high sensitivity alert system, which has many advantages:

- Every possible donor is identified and notified to the transplant coordinator.
- The communication is made in sufficient time, facilitating:
 - A continuum of care of the possible donor.
 - Interprofessional and family decision-making.
 - Plan end-of-life care sequentially.
 - The coordinator takes responsibility for aspects related to the donation, determining the suitability or not of proposing / following the process, the strategy to follow with the family and with the professionals involved. The strategy of implementing an alert system has to be adapted to the peculiarities of each center. It is recommended to make identification and communication of possible donors a regular

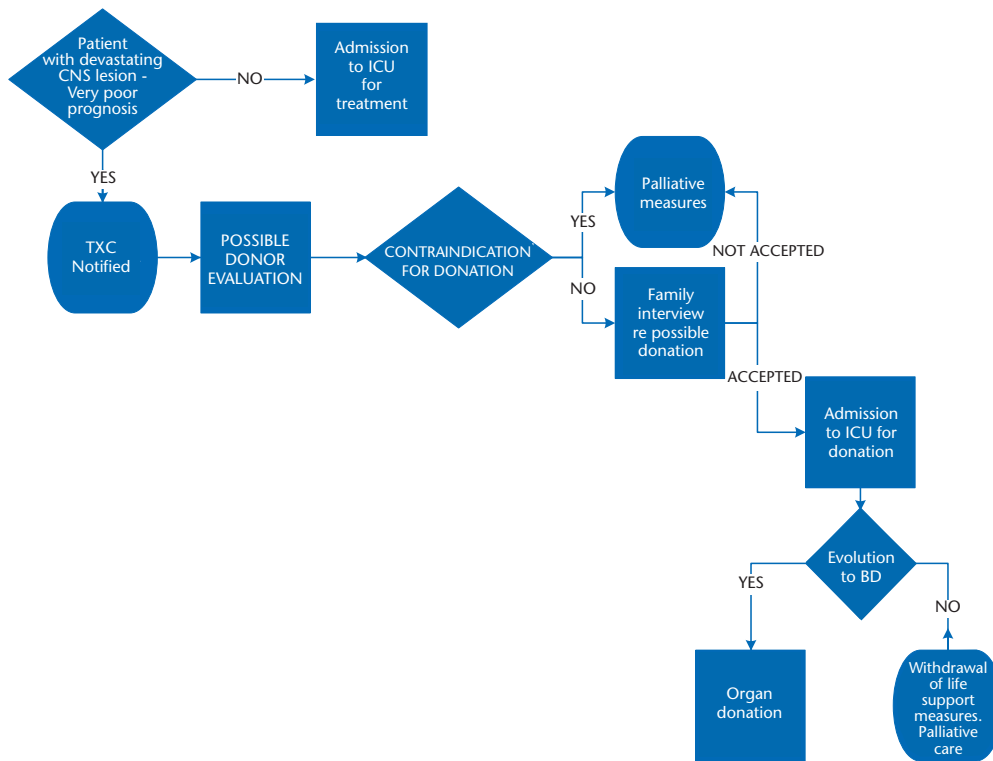


Figure 2. Algorithm of detection and identification of the possible donor in the emergency department. TXC: transplant coordinator; BD: brain death; ICU: intensive care unit. CNS: central nervous system.

activity in the ED and to dissociate the clinical management of the patient from identification as a possible donor.

There are several complementary strategies to maintain the alert regarding the detection of possible donors: fluid communication between the transplant coordinator, ED and EMS professionals, explanatory signs (decision and activation algorithms) and designation of an ED doctor as the referent in donation.

6. How to address obstacles to clinical management of potential donors?

ICU admission of a patient with the sole objective of allowing, if he/she evolves to BD, that patient to be an organ donor should be considered sufficient reason for admission. If that admission is not feasible, the transplant coordinator will consider transfer to another hospital in order to respond to the patient's wishes regarding the donation. In both situations it is necessary to obtain the family members' informed consent and to record the decisions taken in the medical history.

II. Communication and information to relatives of the possible donor

In spite of campaigns in favour of organ donation and having promoted documents of advance directives or previous instructions as from the publication of the Law of Patient Autonomy (Law 41/2002) and of the laws of dignified death in some communities, only 4 out of every 1,000 inhabitants actually have them^{25,26}. The only possibility to know the patient's will regarding donation is to ask.

It is important to clarify that we speak of donation as a possibility, because relatives or legal representatives of the patient will be asked to authorize the necessary support measures so that he/she can evolve to BD and be a donor. Although it is difficult to predict with absolute confidence the evolution to BD (only probability), the relationship of trust and help with the family will be established regardless of uncertainty and outcome.

We have to consider and define the time factor. It is essential to establish with the family how long life support measures will be maintained. BD usually occurs in the first 72 hours, but depends on multiple factors (time of detection of a potential donor, clinical situation, disease), so it is reasonable to establish a short waiting time a priori (24 -72 h). However, this may be modified according to the evolution of the patient and the wishes of the family.

The existence of specific detection protocols must be accompanied by the development of knowledge, skills and attitudes in the field of information and communication. In the classic donation request interview, information and communication with the family or legal representatives starts after the legal certification of death (BD) in the ICU. However, after identifying a possible donor in the ED or EMS we cannot use the standard sequential model since the patient has not yet died. The information and communication with the family or re-

presentatives of the possible donor takes place in the so-called previous interview.

The previous interview does not substitute the classic interview and should only be done when the potential donor's life expectancy is zero, although this does not mean that the final outcome is always BD. Therefore, once BD occurs, consent for donation should be requested through the classic interview. The main objective of the previous interview is not to request the donation but, after informing the relatives or legal representatives of the clinical situation and the vital and functional prognosis, to request consent for the patient to receive the necessary care and measures so that, if BD occurs, he/she can be a donor. This consent will be verbal, but the decision must be recorded in the medical record.

Family members or legal representatives must understand that the purpose for which the patient will be admitted to ICU is not to improve their health but rather to enable them, if they die with BD, to be an organ donor. Just as in the classic interview where the patient's ICU doctor collaborates with the transplant coordination team, so the emergency physician who was responsible for the patient in the ED should participate in the previous interview.

Although the clinical situation of the possible donor makes it impossible for him/her to make decisions, it is necessary to respect the autonomy of the patient, so the family will be asked for the will expressed in life and whether he/she had made documented previous instructions or appointed a legal representative. If there is no prior instruction document or legal representative, it will be the patient's relatives or representatives who provide the consent.

In the previous interview, three phases can be established:

- 1st Phase: communication of clinical situation. The patient's emergency doctor will communicate the patient's clinical condition progressively and in a truthful, adequate, understandable, prudent and pondered manner, including his/her vital prognosis and the futility of the treatment (after prior consent of the specialists involved in patient care: neurologist, neurosurgeon, intensivists etc.). Understanding the clinical situation by the relatives or representatives is a mandatory requirement for the next phase^{25,27-29}.

- 2nd Phase: emotional relief and help. The ED doctor responsible for the patient has communicated the clinical situation of the patient; this professional should help the family to adapt emotionally, since this will facilitate better understanding of the situation by the relatives and will enable them to make other decisions. Other professionals involved, especially nurses, can collaborate in this task. Failure to communicate the patient's death, but mainly his or her situation and the poor prognosis, does not imply that the emotional responses are different from those that occur in mourning after the loss of a loved one, although it allows the relatives of the possible donor to become aware of reality, release their emotions and manage time in the face of inevitable death.

- 3rd Phase: request for consent to admit the patient

to the ICU. The patient's ED doctor responsible for providing the information and communication in the first two phases, will accompany and introduce the family or representatives of the possible donor to the transplant coordination team. The transplant coordinator has the necessary knowledge, skills and experience to identify the timing and manner of performing this prior interview, where permission or consent for ICU admission is requested for the sole purpose of donation if BD ensues. The family must understand that admission to the ICU will not improve their final health or prognosis and will only be performed as a possible donor. The family or representatives should be offered both the option of admission to the ICU and the alternative hospital admission outside the unit explaining that the latter option will not allow him/her to be an organ donor, since the life support and maintenance measures (orotracheal intubation, mechanical ventilation etc.) can only be performed in the ICU, although he/she could still be a tissue donor. Support measures and diagnostic tests (serology, imaging tests) should be gradually explained to the family or legal representatives and those test are necessary for subsequent donor validation³⁰. Regardless of the decision of the family or representatives, palliative care will be guaranteed to allow dignity and absence of pain or suffering^{20,31}.

Given that the evolution of the possible donor is marked by uncertainty (we can define cases of ominous prognosis, but not ensure evolution to BD or when it will occur), it is advisable to ask the family for a waiting period (it is preferable not to exceed 72 hours) that will be adjusted individually according to the etiology and various factors of the patient, the unit and the health center. Once this waiting period is completed, the withdrawal of life support measures will be considered, which will imply the loss of status as a possible donor and, probably, referral to a hospitalization unit to continue the palliative care. In any case, relatives or legal representatives of the potential donor may exercise the right not to exhaust the waiting period and request the withdrawal of life support measures before the established time, if this waiting time means suffering or unbearable damage.

It is advisable to record all care decisions in the patient's medical history (the physician responsible for patient care and the transplant coordination team should reflect in the medical record the options that have been raised and the decision that the family or representatives have taken). Consent for ICU admission will be verbal and only written consent for the donation will be requested once the prospective donor has died of BD.

In approximately one third of the cases, the previous interview is not feasible or should be postponed (relatives or representatives are not present, but they do not understand the critical situation of the patient, the instability of the patient requires ICU admission). In these situations, the previous interview should be done later, when the limiting circumstances allow it.

III. The emergency professional in the transplant coordination team: models of integration

1. How to involve emergency professionals in the donation process?

EMS and ED professionals must be aware of the importance of assessing the possibility of donation in all neurocritical patients without therapeutic options. The detection of potential donors must be integrated into the care work, so the following points are recommended:

- Identify emergency professionals with greater interest in performing tasks related to donation, designating a reference doctor to whom other professionals of the ED can talk about any question related to donation. This professional may or may not join the hospital coordination team.
- Collaboration of the reference doctor with the transplant coordinator in the prospective monitoring of possible donors, as well as in the retrospective review of the mortality in the ED of neurocritical patients.
- Periodically provide retrospective information regarding donation to the EMS and ED professionals from the transplant coordination team through the reference doctor and the transplant coordinator.
- Define a continuous training plan on donations for emergency professionals.

2. How can training favour the involvement of professionals?

- Develop and disseminate in each center a protocol of care of the patient at the end of life that reflects that, once established that the treatment is futile, decides on TLSM. From that moment, the donation must be considered as an option in the care of the end of life. The decision of TLSM is always previous and should not be linked to the donation: the TLSM is always decided first and then the possibility of being a donor is assessed (never the other way around)^{20,32}.
- Define formative strategies of communication of bad news and, in particular, of previous interview. The existence of a continuum of care and a single line of argument in the information to the relatives facilitates their understanding of the information.
- The basic training plan for ED and EMS professionals should include the organ donation process, especially the detection and management of potential donors as a basic area of professional competence, including them in training activities specifically related to their participation in the process of donation.
- It is advisable to include service professionals in projects and scientific studies related to organ donation.

3. Who in the ED is responsible for improving the donation process?

- Interdisciplinary and collaborative work between emergency professionals, ICU and transplant coordination is essential since each has specific functions.
- The management and hospital transplant commission must join forces to promote local initiatives and protocols of specific interdisciplinary action.

4. What is the role of transplant coordination professionals?

- The autonomous coordination of transplants must act as a driving force in the development of protocols that integrate EMS and ED professionals in the donation process.
- Hospital transplant coordinators must act as facilitators with all the professionals involved to develop hospital protocols for action.
- The hospital transplant commission must facilitate discussion of the protocols of action and must mediate in the resolution of conflicts between the parties involved.

5. What measures must hospitals take to facilitate the integration of the EMS and ED professionals in the donation process?

- A hospital protocol of TLSM must be developed and implemented (ensuring its dissemination and compliance).
- The hospital must promote and develop a donation culture that facilitates the care of the potential donor as part of the centre's care work.
- The strategic lines of autonomous transplant coordination should promote the integration of EMS and ED professionals in the donation process, emphasizing the importance of the emergency professional as initiator and an irreplaceable element of the donation process, with special emphasis on the impact of early identification and early communication of possible donors in ED as a way to expand the donor pool.

Summary of key issues

The following recommendations reflect a comprehensive strategy that incorporates the entire hospital in the donation process, since EMS and ED professionals cannot develop the donation process in isolation.

- The detection of potential donors in the ED and early communication to the transplant coordinator for evaluation is key in the donation process in hospitals.
- Detection of potential donors should be part of the care work of emergency professionals.
- The detection of a possible donor in the emergency room means that communication with the family or representatives is framed in a previous interview. The purpose of this interview is not to request the donation but inform them of the clinical situation, the lack of therapeutic options and life-threatening prognosis, and request consent for the patient to receive the necessary care and treatment so that, if BD ensues, he/she can be a donor.
- The participation of emergency professionals should be encouraged with training and scientific activities being carried out in the hospital as well as in autonomic and national settings.
- Training and designation of an ED professional as reference doctor for donation will facilitate communication with the hospital transplant coordinator and optimize

the detection of potential donors.

- It is necessary to develop consensus protocols on TLSM that must take into account local peculiarities with multidisciplinary participation.

Conflict of interest

The authors declare no conflict of interest in relation to this article

Addendum

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Recommendations ONT-SEMES Collaborative Group. The emergency professional and the donation process was approved by the National Transplant Commission of the Interterritorial Council on October 7, 2015.

References

- De la Rosa G, Domínguez-Gil B, Matesanz R, Ramón S, Alonso-Álvarez J, Araiz J et al. Continuously evaluating performance in deceased donation: the Spanish quality assurance program. *Am J Transplant.* 2012;12:2507-13.
- Matesanz R, Coll E, Domínguez-Gil B, de la Rosa G, Marazuela R, Arráez V, et al. Benchmarking in the Process of Donation after Brain Death: A Methodology to Identify Best Performer Hospitals. *Am J Transplant.* 2012;12:2498-506.
- Matesanz R, Domínguez-Gil B, Coll E, de la Rosa G, Marazuela R. Spanish experience as a leading country: what kind of measures were taken? *Transplant.* 2011;24:333-43.
- International figures on donation and transplantation 2014. Newsletter *Transplant* 2013; 18 (1). Organización Nacional de Trasplantes website. (Consultado 15 Septiembre 2015). Disponible en: <http://www.ont.es>
- Spanish national statistics on organ donation and transplantation. Organización Nacional de Trasplantes website. (Consultado 15 Noviembre 2015). Disponible en: <http://www.ont.es>
- Miller LD, Gardiner SK, Gubler KD. Emergency department referral for organ donation: more organ donors and more organs per donor. *Am J Surg.* 2014;207:728-33.
- Martínez Soba F, Ruiz Aguilera A, Calvo Martínez A. Detección y Manejo del posible donante en Urgencias hospitalarias. Actualizaciones en trasplantes 2008. Coordinador: Pérez Bernal J. Sevilla: Hospitales Universitarios Virgen del Rocío; 2009. pp 105-108.
- Matesanz R. Papel de los Servicios de Urgencias y Emergencias en la donación de órganos. *Emergencias.* 2010;22:68-71.
- Guía de buenas prácticas en el proceso de donación de órganos. Organización Nacional de Trasplantes 2010. (Consultado 15 Noviembre 2015). Disponible en: <http://www.ont.es>.
- Matesanz R, Coll E, Domínguez-Gil B, de la Rosa G, Marazuela R, Arráez V, et al. Benchmarking in the process of donation after brain death: A methodology to identify best performer hospitals. *Am J Transplant.* 2012;12:2498-506.
- Matesanz R, Marazuela R, Domínguez-Gil B, Coll E, Mahillo B, de la Rosa G. The 40 donors per million population Plan: An Action Plan for Improvement of organ Donation and Transplantation in Spain. *Transplantation Proceedings.* 2009;41:3453-6.
- Martínez Soba F. La labor del coordinador hospitalario de trasplantes. Hospital no trasplantador sin neurocirugía. El Modelo Español de Donación y Trasplantes. 2ª Edición. Editor: Matesanz R. Madrid: Gru-

- po Aula Médica; 2008. pp 35-40.
- 13 Bodí Saera M, Martínez Soba F. Coordinación hospitalaria. Funciones del Coordinador de Trasplante. Donación de Órganos y Tejidos en Medicina Intensiva. Medicina Crítica Práctica. Coordinadores Masnou Burralló N, Escalante Cobo J.L, Barcelona: Edika Med S.L. ;2013. pp. 13-24.
 - 14 Masnou N, Pont T. Walking a thin line? Intensive care physicians as hospital transplant coordinators - new challenges in the donation process. *Organs Tissues & Cells*. 2012;15:187-91.
 - 15 El intensivista fuera de la UCI: relación con la unidad de urgencias y la unidad de ictus. Donación de órganos y tejidos en intensivis. Barcelona: Edika Med; 2013. pp: 163-170.
 - 16 Masnou N. Donación y ancianidad. Barelona: Edika Med; 2013. pp. 201-210.
 - 17 Donación en Asistolia en España: Situación actual y Recomendaciones. Documento de Consenso 2012. Página web Organización Nacional de Trasplantes. (Consultado 15 Noviembre 2015). Disponible en: <http://www.ont.es>.
 - 18 Povar Marco J, Javierre Loris MA, Garcés Sanjosé C, Sánchez Miret JI. Opinión de los profesionales sanitarios de Aragón acerca del papel de los servicios de urgencias hospitalarios en el proceso de donación. *Emergencias*. 2015;27:46-9.
 - 19 Puig M, Caballero F, Ris J, Leal J. ¿Por qué debemos considerar la donación de órganos en urgencias? El derecho del paciente a ser donante. *Emergencias*. 2014;26:493.
 - 20 Monzón Marín JL, Saralegui Reta I, Abizanda i Campos R, Cabré Pericas L, Iribarren Diarasari S, Martín Delgado MC, et al; Grupo de Bioética de la SEMICYUC. [Treatment recommendations at the end of the life of the critical patient]. *Med Intensiva*. 2008;32:121-33.
 - 21 Real Decreto 1723/2012, de 28 de diciembre, por el que se regulan las actividades de obtención, utilización clínica y coordinación territorial de los órganos humanos destinados al trasplante y se establecen requisitos de calidad y seguridad. Madrid: BOE; 2012.
 - 22 Monzón Marín JL, Martínez Soba F. Límites y condicionantes del deber de informar. Información al paciente crítico. Medicina Crítica Práctica. Coordinadores Arias Garrido JJ, Abizanda Campos R. Barcelona: Edika Med S.L.; 2012. pp. 57-70.
 - 23 Monzón JL, Saralegui I, Molina R, Abizanda R, Marín MC, Cabre L, et al, por el Grupo de Bioética de la SEMICYUC. "Ética de las decisiones en resucitación cardiopulmonar". *Med Intensiva*. 2010;34:534-49.
 - 24 Masnou Burralló N. Tratando con la familia del donante potencial. En: Arias Garrido JJ, Abizanda Campos R, eds. Información al paciente crítico. Barcelona: Edika Med; 2013. pp. 155-161.
 - 25 LEY 41/2002, de 14 de noviembre, básica reguladora de la autonomía del paciente y de derechos y obligaciones en materia de información y documentación clínica.
 - 26 Ley 30/1979, de 27 de octubre, sobre extracción y trasplante de órganos.
 - 27 Código de Deontología Médica. Guía de ética médica. Julio 2011. (Consultado 15 Noviembre 2015). Disponible en: https://www.cgcom.es/sites/default/files/codigo_deontologia_medica.pdf.
 - 28 Código ético de la SEMICYUC. (Consultado 15 Noviembre 2015). Disponible en: www.semicyuc.org/sites/default/files/codigo-etico-semicyuc.pdf.
 - 29 Ley 14/1986 de 25 de abril. General de Salud (BOE nº 102 de 29 de abril de 1986). Madrid: BOE; 1986.
 - 30 Segura González F, Mora Ordóñez MB, Nieto de Haro ML, Daga Ruiz D. Detección y perfil de los donantes de tejidos en un servicio de urgencias hospitalario. *Emergencias*. 2014;26:300-2.
 - 31 Committee on Bioethics (DH BIO) of the Council of Europe. Guide on the decision-making process regarding medical treatment in end-of-life situations. (Consultado 15 Noviembre 2015). Disponible en: <http://www.coe.int/en/web/bioethics/guide-on-the-decision-making-process-regarding-medical-treatment-in-end-of-life-situations>.
 - 32 Rady MY, Verheijde JL, McGregor JL. Scientific, legal, and ethical challenges of end-of-life organ procurement in emergency medicine. *Resuscitation*. 2010;81:1069-78.