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ORIGINAL ARTICLE

Summary of Spanish recommendations on intensive care to facilitate organ donation

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With the aim of consolidating recommendations about the practice of initiating or continuing intensive care to facilitate organ donation (ICOD), an ad hoc working group was established, comprising 10 intensivists designated by the Spanish Society of Intensive Care and Coronary Units (SEMICYUC) and the Spanish National Transplant Organization (ONT). Consensus was reached in all recommendations through a deliberative process. After a public consultation, the final recommendations were institutionally adopted by SEMICYUC, ONT, and the Transplant Committee of the National Health-Care System. This article reports on the resulting recommendations on ICOD for patients with a devastating brain injury for whom the decision has been made not to apply any medical or surgical treatment with a curative purpose on the grounds of futility. Emphasis is made on the systematic referral of these patients to donor coordinators, the proper assessment of the likelihood of brain death and medical suitability, and on transparency in communication with the patient's family. The legal and ethical aspects of ICOD are addressed. ICOD is considered a legitimate practice that offers more patients the opportunity of donating their organs upon their death and helps to increase the availability of organs for transplantation.

KEYWORDS

clinical decision-making, critical care/intensive care management, donation after brain death (DBD), donation after circulatory death (DCD), donors and donation, ethics and public policy, health services and outcomes research, organ procurement and allocation

1 | INTRODUCTION

Organ transplantation is the best and frequently the only life-saving treatment for patients with end-stage organ failure. The major limitation to the expansion of transplant therapies is the chronic

disparity between the supply and the demand of organs. The World Health Organization has urged countries to pursue self-sufficiency in transplantation, which entails developing deceased donation to its maximum therapeutic potential.^{1,2} Considering that decision-making at the end-of-life should be based, not exclusively on medical, but

Abbreviations: BD, brain death; cDCD, controlled donation after circulatory death; CT, computed tomography; DBI, devastating brain injury; DC, donor coordinator; ENT, elective non-therapeutic ventilation; ICOD, intensive care to facilitate organ donation; ICU, intensive care unit; ONT, Spanish National Transplant Organization (Organización Nacional de Trasplantes); SEMICYUC, Spanish Society of Intensive Care and Coronary Units (Sociedad Española de Medicina Intensiva, Crítica y Unidades Coronarias).

also on moral, societal, and welfare considerations, critical care societies currently promote the principle that organ donation should be presented as an option in end-of-life care.³⁻⁷ This recommendation is underpinned by the concept that health care providers should proceed under a holistic approach in the interests of patients once all curative treatments have been disregarded.⁸

In Spain, the possibility of organ donation is systematically offered when patients develop a brain death (BD) condition. BD criteria are fulfilled by 15% of patients who die in intensive care units (ICUs).⁹ Recently, changes in the Spanish regulatory framework have also accommodated the practice of controlled donation after circulatory death (cDCD).^{10,11}

Admission to the ICU and initiation or continuation of life-sustaining measures, such as mechanical ventilation, with the aim of enabling organ donation in patients with a devastating brain injury (DBI) in whom treatment with a curative purpose has been considered futile is also a reality in our system. The ICU setting allows the continuous monitoring of the patient's status, a goal-directed analgesia, and proper end-of-life care, but also incorporates the option of organ donation into end-of-life care plans.^{6,7} A recent study revealed that 10% of patients who die as a result of a DBI in Spanish hospitals have been admitted to the ICU to enable organ donation. These patients contribute to 24% of deceased donation activities, with a mean of 2.3 organs transplanted per donor.^{12,13} This practice, particularly that of extending intensive care beyond futility to facilitate organ donation, is also progressively more common in other settings.^{14,15} Elective nontherapeutic ventilation (ENTV) is, however, infrequent and raises some controversies. In the United Kingdom, ENTV has been considered illegal and only recently the National Institute for Health and Care Excellence has recommended to deem it an ethically acceptable medical practice.^{16,17}

But even in Spain there is still a large margin for improvement in terms of donation potentiality—39% of patients who die as a result of DBI in Spanish hospitals are never admitted to the ICU, neither for maximal therapeutic effort nor for end-of-life care. Of those, almost half are medically suitable organ donors.¹³ However, these patients die in the emergency room or in a hospital ward without organ donation having been offered as an option.

Considering that the holistic care of a dying patient should include the possibility of ICU palliative care and organ donation and that such practice is challenging, the Spanish Society of Intensive Care Medicine and Coronary Units (SEMICYUC) and the Spanish National Transplant Organization (ONT) decided to elaborate a set of recommendations to standardize the practice named in this document as intensive care to facilitate organ donation (ICOD). These recommendations have been produced considering the Spanish legal framework and professional codes of practice. Because Spain is a world leader in organ donation,¹⁸ this work may help other countries identify a way to offer more patients the opportunity to donate organs after death, and progress toward self-sufficiency in transplantation, adapted to their regulatory and cultural idiosyncrasies.

2 | METHODS

An ad hoc working group was established, comprising 10 intensivists, 5 designated by SEMICYUC and 5 by ONT, who coordinated the initiative. Participants were affiliated with at least one of the following areas of expertise: bioethics, donor coordination, organization, and management. Relevant documentation for the project was pooled, including available guidelines about end-of-life care.^{4-6,19} The terminology, the structure, and aspects to address in the document were all agreed upon. Different subgroups formulated recommendations based on the available evidence and expert opinions. Draft recommendations were shared among all participants to reach consensus through the corresponding deliberative process.

A public consultation was undertaken to reinforce the validity of the recommendations.* All comments and suggestions received were carefully reviewed by the working group to produce a final document that was institutionally adopted by the SEMICYUC, ONT, and the Transplant Committee of the Spanish National Health-Care System.

3 | TERMINOLOGY

ICOD is defined as the initiation or continuation of intensive care in patients diagnosed with a DBI, in whom medical or surgical treatment for curative purposes has been deemed futile, and who are considered possible organ donors, with the aim of incorporating the option of donation after brain death (DBD) into their end-of-life care plans. This term, supported by other authors,^{20,21} emphasizes that care for the dying patient remains paramount. Other terms relevant to these recommendations are presented in Table 1.^{17,22-25}

4 | RECOMMENDATIONS ON ICOD

The process of ICOD is represented in Figure 1. Recommendations for the realization of each of its stages are summarized below. Requisites for a hospital to engage in ICOD are depicted in Table 2.

4.1 | Identification of the patient with a devastating brain injury and referral to the donor coordinator

Patients with a DBI, in whom any curative treatment has been deemed futile, can be identified in different scenarios.²⁶ They may have been admitted to the emergency department, a hospital ward, or the ICU. At the time of identification, they may be already invasively ventilated or not, have a stable condition, or be at risk of respiratory arrest.

Regardless of the unit where the patient is admitted and their clinical condition, the prognosis assessment and the decision-making regarding the potential curative treatment options lie with a multidisciplinary team drawn from different specialities depending on the

TABLE 1 Terminology

Terms relative to the patient	
Patient with a devastating brain injury	Patient with a severe neurologic pathology that involves a risk of imminent death. For the purpose of this document, this term refers only to a patient in whom medical or surgical treatment for therapeutic purposes has been deemed futile
Possible donor	Patient with a devastating brain injury with a high likelihood of evolving to BD in a short period of time and with no apparent medical contraindications to organ donation
Potential donation after brain death donor	Patient who has evolved to BD and with no medical contraindications to organ donation
Potential controlled donation after circulatory death donor	Patient who has not evolved to BD, in whom the decision has been made to withdraw life-sustaining therapy and with no medical contraindications to organ donation
Actual donor	Deceased person in whom an incision has been made with the purpose of organ recovery for transplantation
Utilized donor	Actual donor from whom at least one organ has been transplanted
Terms relative to the clinical practice	
Intensive care to facilitate organ donation	<ul style="list-style-type: none"> • initiation or continuation of intensive care (eg, admission to the ICU, endotracheal intubation, mechanical ventilation, vasoactive support); • in patients with a devastating brain injury (patients with a risk of imminent death due to a neurological cause), in whom medical or surgical treatment for curative purposes has been deemed futile; • who are considered to be possible organ donors (due to the high likelihood of their evolution to BD in a short period of time and with no apparent medical contraindications to organ donation); • with the aim of incorporating the option of DBD as part of end-of-life care
Interview to pose ICOD (=Early Interview)	Interview conducted with the family of a patient with a devastating brain injury who is considered to be a possible organ donor to inform about and request authorization to apply ICOD
Elective nontherapeutic ventilation	Endotracheal intubation and initiation of mechanical ventilation in a patient with a devastating brain injury who is considered to be a possible organ donor, with the aim of incorporating the option of DBD as part of end-of-life care
Other terms	
Family	Term used generically to refer to the persons with whom communication is established regarding the patient with a devastating brain injury and the possible donor, whether they are connected to the patient by family or de facto relations, or they are their legal representatives
Futile treatment	Treatment with a low actual probability of producing a significant therapeutic benefit for a specific patient, in terms of curative expectations or symptomatic improvement and, therefore, of reasonably compensating the possible harmful effects of its implementation or maintenance. This term is currently under review and will probably be replaced in the coming years by another more accurate term such as "Potentially inappropriate treatment"
Withdrawal of life-sustaining therapy	Withdrawal or nonintroduction of a life-sustaining measure or any other intervention which, given the unfavorable prognosis of the person in terms of quantity and quality of future life, constitutes, in the judgment of the health-care professionals involved, something futile that only contributes to prolonging a clinical situation without any reasonable expectations of improvement. This term is currently under review and will probably be replaced in the coming years by another more accurate term such as "Adjustment of life-sustaining treatment"

BD, brain death; DBD, donation after brain death; ICOD, intensive care to facilitate organ donation; ICU, intensive care unit.

particular case (neurosurgeons, intensivists, neurologists, emergency care physicians, anesthesiologists, internists, or pediatricians). The team agrees by consensus about the best way to manage the patient—a decision independent of the potentiality of organ donation. The donor coordinator (DC) does not participate in the assessment of the patient's likelihood of obtaining any benefit from medical or surgical interventions.

ICOD will exclusively be posed as an option when the treating team has considered that the risk of death is imminent and made the decision to shift from curative therapeutic efforts to palliative and end-of-life care. Hence, if the treating team does not reach a

consensus about the certainty of the catastrophic prognosis of the brain injury or there are doubts about the plausible benefit of any intervention, the patient will be subject to intensive care with a curative purpose.

Once ICOD is accepted as the best option, the patient should be referred to the DC. Early referral is critical to provide the DC with sufficient time for a proper assessment of the possible donor and work out the details of the family interview.^{24,27-29} All of this information—the decision about the patient's prognosis, the proposed action plan, and the referral to the DC—must be written in the medical record. Criteria for the systematic notification of possible

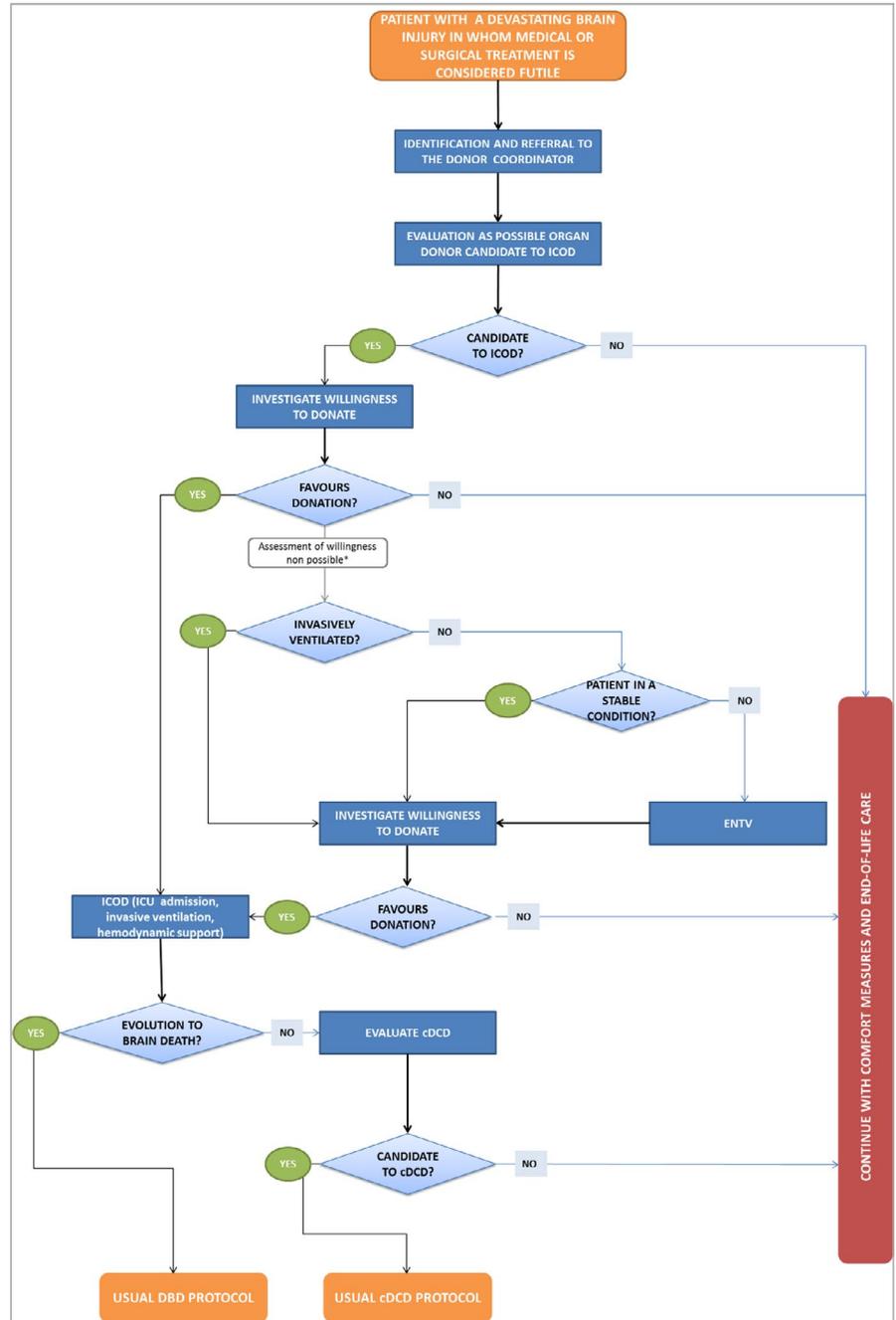


FIGURE 1 The process of ICOD. *Family not present or imminent risk of respiratory arrest. DBD, donation after brain death; cDCD, controlled donation after circulatory death; ENTV, elective nontherapeutic ventilation; ICOD, intensive care to facilitate organ donation; ICU, intensive care unit [Color figure can be viewed at wileyonlinelibrary.com]

donors to the DC should be written in a clear and easy protocol as this has shown to increase the chance of donor referral by 46%.¹³

4.2 | Assessment of a patient with a devastating brain injury as a possible donor candidate to ICOD

The selection of a patient with a DBI as a possible donor candidate to ICOD must be based on the likelihood that BD will occur shortly, and on the absence of absolute medical contraindications. If evolution to BD seems unlikely or absolute contraindications to donate are identified, ICOD shall not be offered.

In assessing the likelihood of BD, the intensivist plays a key role. Factors such as the type, location, and extension of the structural

brain injury; the clinical evolution; the neurologic situation; neuro-monitoring data; level of treatment; and dependence on devices shall all be taken into account.

As the evolution of the DBI continues, it is less likely that BD occurs. Evolution to BD is rapid, as shown in a multicenter study of 1884 brain-dead patients in 42 Spanish hospitals.³⁰ In centers with neurosurgery, 72% of patients evolved to BD within 72 hours, of whom 48% did so within 24 hours. Corresponding percentages increased in hospitals without neurosurgery to 83% and 59%, respectively. The ACCORD-Spain study also revealed that of patients dead because of a DBI who had been admitted to the ICU for ICOD, 50% evolved to BD within 24 hours and 75% within 72 hours.¹² Thus, it is

TABLE 2 Requirements recommended for a hospital to engage in an ICOD program

1. Institutional support by hospital managers, heads of the ICU, and other hospital units that will participate in the process. Donation must form part of the hospital health service portfolio and be accepted as another reason for admission of patients into the ICU
2. Written protocols on the withdrawal of life-sustaining therapy that specifically approach terminal extubation in all involved hospital units
3. Incorporation of ICOD into hospital protocols on the identification of possible organ donors. These protocols must be the product of a consensus between all professionals involved and shall include criteria for the systematic referral of patients with a devastating brain injury to the donor coordinator, as well as the procedure to be followed for the said notification
4. Continuous and specific training on ICOD to all health care providers that participate in the process, based on the concept that donation should be an integral part of end-of-life care
5. Implementation of a system for the continuous assessment of the ICOD process, where information is recorded about the result of each patient with a devastating brain injury in whom ICOD has been considered, aiming at identifying improvement opportunities and corrective measures, as appropriate
6. Periodic feed-back sessions with all professionals involved, allowing a collective analysis of the process and resolution of any conflict

ICOD, intensive care to facilitate organ donation; ICU, intensive care unit.

unlikely that a nonintubated patient with a DBI who has survived for 24-48 hours evolves to BD if mechanical ventilation is initiated.

The most valuable complementary test for the prediction of BD is computed tomography (CT), which documents the type, location, and severity of the injury, as well as any sign of intracranial hypertension and brain herniation. A recent study assessing the predictive capacity of cranial CT revealed that the compression or absence of basal cisterns was a factor strongly associated with a possible evolution to BD.³¹ Other radiologic findings may help to assess the likelihood of BD, such as an optic nerve diameter exceeding 5-6 mm,^{32,33} or the "twirl sign" (in CT scans without contrast) and the "spot sign" (in CT scans with contrast and in CT angiographies) in intracerebral hemorrhages.³⁴⁻³⁶ Transcranial Doppler can be used as a noninvasive tool to help estimate intracranial pressure and the likelihood of BD.³⁷

Assessment of the medical suitability of patients with a DBI as possible organ donors is initially based on the information shown in the medical record and that provided by the family, and on the results from complementary tests available. Hence, the selection of patients as candidates to ICOD is perforce made with incomplete information. Once in the ICU the evaluation will be completed. The DC, with the support of other experts, will lead this assessment. Deviating from this recommendation may result in inappropriate medical contraindications deriving on potential donor losses.³⁸

4.3 | Investigation of the willingness to donate and communication with the family of the possible organ donor

The early interview is defined as the approach to the family of patients with DBI considered possible donors to request authorization for ICOD. The early interview is part of a continuous communication process with different stages:

- Information on the diagnosis, the fatal prognosis, and the shared decision that further treatment would be futile should be conveyed to the family by the senior treating physician.²³
- Assessment of the prior will of the patient regarding organ donation, through the means available, including advanced directives or advance care planning³⁹ must be undertaken. Should a prior expression against organ donation exist, the option of ICOD shall not be posed.
- The early interview itself must be led ideally by the DC⁴⁰; their participation in this type of interview increases the probability of consent by 2.3 times.¹²
- Should ICOD be accepted and the patient evolve to BD, the standard procedure for obtaining consent for organ recovery shall proceed.

Information conveyed to the family during the early interview must be clear and accurate, be provided in a progressive way, and adapted to their emotional needs. The family's emotional state and capacity to cope with the loss will frame the conversation. Support involves an open attitude and understanding tone. It implies leaving room for rejection or anger and being an attentive listener; emotional release is therapeutic for bereavement. Attending to the spiritual and practical needs of the family is also a duty of the DC.^{41,42}

The option of ICOD must not be introduced until the family has understood and accepted the fatal prognosis of their beloved one and their emotional situation enables them to make decisions.

The early interview should be first targeted at understanding whether organ donation was consistent with the patient's wishes and values. Exploring the patient's and family's wishes about donation includes sensitively addressing cultural, religious, and medical questions, being nonjudgmental, and clarifying any misconceptions. Whatever the decision made, gratitude for consideration of donation should be expressed by the DC.⁴³

If organ donation is supported, information must be provided on the type of measures and diagnostic tests necessary to enable organ donation until the patient evolves to BD. It should be made clear that these measures are not aimed at curing the patient, but at incorporating the option of organ donation into their end-of-life care plans.^{27,44} It shall be emphasized that the comfort of the patient and the absence of suffering will be guaranteed, and that the family will be able to spend time with their loved one. The family must also be informed that evolution to BD will generally occur in 24-72 hours, but it may take longer or not occur. They shall always be given the option to revoke their decision. Should the patient not evolve to BD

TABLE 3 Basic elements of the early interview

Preliminary conditions	Consensus among physicians about the prognosis and nonbeneficial effect of medical or surgical treatment options available for a specific patient diagnosed with a devastating brain injury	There are no apparent medical contraindications to organ donation	There is a high likelihood of evolution to BD within a short period of time (<72 hr)	There is no evidence of expressed previous opposition to donation
Settings	Patient outside of the ICU not invasively ventilated <ul style="list-style-type: none"> • Unstable • Stable 	Patient outside of the ICU invasively ventilated	Patient admitted to the ICU and invasively ventilated	
Contents	Assessment of the family knowledge and understanding of the patient's condition and prognosis	Assessment that organ donation was consistent with the patient's will and values	Information on the measures required to enable organ donation (not curative aim)	Stress that the comfort of the patient will be paramount
			Agreement on a maximum period of observation (24-72 h) to enable death to be determined by neurologic criteria	Offering the withdrawal of life-sustaining therapy if BD does not occur or if the family changes their mind
				Information that the family can revoke their consent for ICOD at any time

BD, brain death; ICU, intensive care unit.

over the agreed period following ICOD or the family changes their initial decision, they must understand that life-sustaining measures will be withdrawn and care will strictly aim at ensuring the patient's comfort. The value of donation should be emphasized and recognition to the donor given.

If donation was not consistent with the patient's values or the family does not authorize ICOD, the procedure aimed at ensuring comfort measures and guaranteeing end-of-life care shall be continued.

Timing of the early interview may vary depending on the unit where the patient is admitted and their clinical condition:

- Patients outside of the ICU in whom the decision has been made not to initiate invasive mechanical ventilation:
 - Stable (no risk of imminent respiratory arrest): The early interview shall be conducted outside of the ICU, the patient only being admitted to the ICU and invasive ventilation initiated after the family has granted authorization for ICOD.
 - Unstable (risk of imminent respiratory arrest): Invasive ventilation and stabilization of the patient becomes the priority to preserve donation opportunities. Once the patient has been stabilized, the early interview will be conducted. If organ donation was not consistent with the patient's values, the initiated life-sustaining measures will be withdrawn and the patient will receive comfort treatment and end-of-life care in a hospital ward.
- Patients outside of the ICU in whom mechanical ventilation has already been initiated with a curative purpose by the out-of-hospital or the hospital emergency services, which is no longer considered appropriate: The early interview can be conducted in the emergency department, the patient being admitted to the ICU if the family authorizes ICOD. In the event of a negative response, life-sustaining measures shall be withdrawn after informing the family, redirecting treatment to comfort care.
- Patients in the ICU invasively ventilated, subject to maximum therapeutic efforts during a period of time, which are no longer deemed beneficial: If BD is a likely outcome should the withdrawal of life-sustaining therapies be delayed, the early interview may be conducted to offer the option of ICOD. If evolution to BD is unlikely or the family does not wish to wait, cDCD could be offered as an option.

Should the family not be present and/or the wishes of the patient be unknown, the initiation of ICOD is recommended to preserve donation opportunities until obtaining the necessary information. Once the family has been contacted, if they express opposition to organ donation, the initiated life-sustaining measures shall be withdrawn, except for those intended for the comfort and welfare of the patient, that will be continued in the most convenient location for the family and the patient.

Information regarding the early interview and consent for ICOD must be documented in the medical record.

Key features of the early interview are summarized in Table 3.

4.4 | Intensive care to facilitate organ donation in the intensive care unit

During ICOD, comfort care of the patient must be the priority.^{22,23} As there is no concluding scientific data regarding the possibility of some degree of residual perception and physiologic responses to pain persist in patients with DBI, analgesia is always recommended. Moreover, the attending physician may decide on the need for short half-life sedatives according to the patient's clinical condition until BD criteria are met.^{23,45}

ICOD shall also include the measures necessary for optimizing perfusion and preserving organs. Until the onset of BD, maintenance is similar to that of any other patient, disregarding the treatment of intracranial hypertension.

Hemodynamic management must be focused on optimization of preload and perfusion pressure, avoiding hypervolemia if donation of thoracic organs is considered.⁴⁶ Before BD, hypertension will often occur as a result of the catecholamine storm, during which cardiac and pulmonary functions may be compromised.⁴⁷ With respect to mechanical ventilation before the onset of BD, modes and parameters must be used that maximize oxygenation, avoiding overcorrection of ventilation. In the case of lung donation, lung protective ventilator strategies should be programmed.

Assessment of the medical suitability of the patient as a possible organ donor (including laboratory, serologic, and radiologic tests) is completed in the ICU, before BD occurs, as consent for ICOD includes testing to confirm the suitability of the donor. Although it does not differ from that of any other donor, it may be more complex due to the associated comorbidity and advanced age of these patients—mean age of patients admitted to the ICU for organ donation is 69 years in the Spanish experience.¹³ The evaluation of lung and cardiac viability must be performed after BD, as the functioning of both organs may change significantly during the time in the ICU, and especially after BD.⁴⁸ The DC makes the final decision on medical suitability.

If the patient does not evolve to BD in the period agreed with the family or the family does not wish to prolong the wait, measures shall be taken to allow the disease to take its course and withdrawal of life-sustaining therapy shall be evaluated, guaranteeing proper end-of-life sedation and analgesia. If the patient does not evolve to BD and the decision is made to withdraw life-sustaining measures, cDCD may be considered as an option.

Communication, support, and attention to the needs of the possible donor's family should continue during the stay of the possible donor in the ICU until the end of the process.^{22,23,41}

5 | LEGAL, DEONTOLOGICAL, AND ETHICAL ASPECTS

ICOD can be considered a good medical practice, since it preserves the rights of possible donors, and the legal and deontological duties of physicians. In line with the holistic care of a dying patient, critical care medicine offers a goal-directed plan for palliative care in tandem with

preserving the option of organ donation, while respecting the boundaries between both decisions.²¹ Hence, health care providers should never consider donation until the prognosis of the DBI has been well established and consequent decisions on treatment have been made.

ICOD fully complies with the *Spanish Royal Decree 1723/2012 of 28 December, regulating the activities of procurement, clinical use and territorial distribution of human organs intended for transplantation*, and with Spanish regulations about end-of-life decision-making.⁴⁹⁻⁵² Although these laws do not make specific reference to ICOD, they are considered fit for regulating this practice. ICOD is also consistent with recommendations on end-of-life care issued by a significant number of critical care societies.⁴⁻⁹

ICOD conforms with the Spanish Deontological Medical Code, issued by the Medical College of Physicians and respects the dignity of the patient. According to article 48 of this Code, it is the duty of the physicians to consider and offer organ donation in every case that the patient has not voiced their disagreement.⁵³

ICOD is underpinned by the principle of autonomy as it requires that the treating team and the DC explore the wishes of the patient with regard to donation by using all means available, as well as ascertain their values regarding how each patient wishes their dying process and body to be treated. Thus, if the patient has expressed a rejection of donation, the attending team will not propose ICOD. However, if the patient or the family as surrogates voice the patient's wishes to become an organ donor, health care providers must offer ICOD. Moreover, not offering the option of organ donation can be consistent with a paternalistic attitude that moves away from a patient-centered care model.

Respect for the principle of beneficence is ensured by the ICOD protocol, not only for the recipients, but also for donors and their families. ICOD benefits the donor by honoring the person's wish to be a donor and by respecting their preferences on living and dying. By enabling organ donation, ICOD may help a family to bring meaning to their loss.⁵³⁻⁵⁸

ICOD has been traditionally considered a practice of intolerable risk of harm to the donor, and to the exclusive benefit of a third party. This argument is grounded in the idea that every treatment should aim to benefit the patient and by no means be applied for the benefit of others. However, not complying with a person's will can be considered a form of harm. Therefore, enabling donation until explicit consent or rejection is stated is morally acceptable as it secures the possibility of later complying with the will of the person. Although this approach may be considered to be favored by the Spanish opt-out system, the truth is that the core of the ICOD protocol is preserving the option of organ donation until the patient's wishes can be properly assessed. Independently of the consent policy of a country, health care providers should be committed to pursue patients' wishes, including organ donation.

ICOD is underpinned by the nonmaleficence principle, as it guarantees 4 aspects:

- The obligation of the attending physician to disclose honest, compassionate, and clear information to the family about the fatal prognosis and donation opportunities, while being sensitive to their

emotional state. Should organ donation be consistent with the patient's values, information is provided on the need to initiate or continue life-sustaining measures to facilitate organ donation. Emphasis is made that these measures aim at permitting the evolution of the patient to BD, while preserving organs for transplantation.

- The potential conflict of interests regarding curative treatment vs ICOD is resolved because the decision not to attempt the first is made by a multidisciplinary expert team in which the DC takes no part.
- The risk of causing unacceptable harm to the patient is avoided, since the protocol stresses the proper selection of possible donors with a high likelihood of BD and offers the possibility to withdraw life-sustaining measures at each stage. If the family does not wish to continue or the patient does not evolve to BD, withdrawal of life-sustaining treatment will proceed and comfort measures will be maintained. In a Spanish study, all 125 patients subject to ICOD died, of whom 101 evolved to BD within 72 hours.⁵⁹ ICOD guarantees a respectful dying process in agreement with the family's wishes.
- The alleviation of suffering and the comfort of the patients is sought in all stages.

ICOD also respects the justice principle. The use of ICU resources for ICOD is controversial. This is, however, justified by the clinical benefits resulting from transplantation in terms of survival and quality of life. As an average, each donation provides 31 years of life, reaching 56 years in the case of donation of all organs.⁶⁰ Moreover, ICOD contributes to the sustainability of the public health care system, as kidney transplantation is cost-effective compared with dialysis. A recent study revealed that ICU admission with a therapeutic purpose provides patients with approximately 1.0 quality-adjusted life-year per ICU bed-day, whereas admission to facilitate organ donation results in 7.3 QALYs gained for the community per ICU bed-day.⁶¹

6 | CONCLUSIONS

ICOD is a legitimate practice that should be considered as part of the health care service portfolio of any country that has a regulated organ donation and transplantation system.

End-of-life care in the ICU can be enriched by applying ICOD, as it guarantees the patient-centered intensive care model. It is grounded on the autonomy principle and benefits extend to recipients, donors, and their families.

Although the legal and ethical framework described in this article is specific to Spain, these recommendations may help professionals and governments to initiate discussions about the best way to incorporate ICOD in their context. By doing so, more persons will be offered the opportunity to become organ donors, thereby enlarging the number of organs available for transplantation.

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DISCLOSURE

The authors of this manuscript have no conflicts of interest to disclose as described by the *American Journal of Transplantation*.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

ENDNOTE

Participants in the public consultation: professionals from intensive care units and the donor coordination network in Spain, the SEMICYUC Bioethics, Transplantation, and Planning, Organization and Management working groups, the Spanish Society of Intensive Care Nursing and Coronary Units (SEEIUC), the Spanish Society of Emergency Care Medicine (SEMES), the Pan-American and Iberian Federation of Societies of Critical Care Medicine and Intensive Care Therapy (FEPIMCTI), and the ONT Ethics Committee.

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