



REVIEW

Organ donor management: Eight common recommendations and actions that deserve reflection



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Abstract Despite major advances in our understanding of the physiopathology of brain death (BD), there are important controversies as to which protocol is the most appropriate for organ donor management. Many recent reviews on this subject offer recommendations that are sometimes contradictory and in some cases are not applied to other critically ill patients. This article offers a review of the publications (many of them recent) with an impact upon these controversial measures and which can help to confirm, refute or open new areas of research into the most appropriate measures for the management of organ donors in BD, and which should contribute to discard certain established recommendations based on preconceived ideas, that lead to actions lacking a physiopathological basis. Aspects such as catecholamine storm management, use of vasoactive drugs, hemodynamic objectives and monitoring, assessment of the heart for donation, and general care of the donor in BD are reviewed.

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PALABRAS CLAVE

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 Nutrición enteral

Tratamiento del donante de órganos. Ocho recomendaciones y actuaciones habituales que merecen una reflexión

Resumen A pesar de los avances en la comprensión de la fisiopatología de la muerte encefálica, existen controversias importantes sobre el protocolo más adecuado para el tratamiento del donante de órganos. En muchas revisiones recientes aparecen recomendaciones, a veces contradictorias, y a veces no aplicadas a otros pacientes críticos. Este artículo revisa publicaciones, muchas de ellas recientes, que tienen un impacto en estas medidas controvertidas y que pueden ayudar a confirmar, refutar o abrir nuevas áreas de investigación sobre las medidas más apropiadas para el tratamiento del donante y que deberían hacer olvidar algunas recomendaciones habituales basadas en ideas preconcebidas, que conducen a acciones carentes de una base fisiopatológica. Se revisan aspectos como: el control de la tormenta catecolamínica, el uso de fármacos vasoactivos y de hormonas, los objetivos hemodinámicos y su monitorización, la evaluación del corazón para donación y otros aspectos generales del tratamiento del donante en muerte encefálica.

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The involvement of intensivists is one of the fundamental pillars on which the successful and worldwide referent Spanish Model of donation and transplantation is based. Intensivists are often responsible for hospital transplant coordination, are actively involved in diagnosis of brain death (BD) and their cooperation is key to increasing donation programs in circulatory arrest.¹ Most transplanted organs are from donors in BD and it is in the Intensive Care Units where most of deaths occur in this situation, so intensivists have the responsibility of identifying the potential donor and its subsequent management until organ retrieval for transplantation.^{2,3} During and subsequent to onset of BD may occur hemodynamic, hormonal and inflammatory disorders that can cause cardiac arrest of potential donor or may alter or irreversibly damage the function of different organs before retrieval occur.⁴ In this period of time it is necessary to establish an active treatment in order to prevent, minimize or reverse these conditions and achieve not only a greater number of potentially transplantable organs, but also a higher quality of the same to ensure their optimal function after transplantation, a greater longevity of its function and, therefore a higher quality of life of the recipient.

In spite of major advances in the understanding of the pathophysiology of BD, there are important controversies about which protocol is the most appropriate for organ donor management. A recent meta-analysis and systematic review of published studies, until August 2012, found no protocol or measure of proven efficacy.⁵ However, the conclusion of this work should not be deducted that there are no adequate and essential measures, but rather reflects the lack of well-designed studies with clearly identifiable and comparable objectives that demonstrate with scientific evidence the superiority of some measures over other. Most of the recommendations are based on experimental animal models, retrospective observational studies or expert opinion and extrapolated measures, as can be otherwise, common actions on any other critically ill patient. Regardless of this scientific limitation, the treatment applied to

donors is one of the factor that most influences the number and quality of transplanted organs.^{6,7} In many recent reviews on this subject appear recommendations, sometimes contradictory, and sometimes not applied to other critically ill patients, which may confuse the reader. This article review publications, many of them recent, which have an impact on these controversial measures and which can help to confirm, refute or open new areas of research into the most appropriate measures for treatment of organ donors in BD and what they should be done to forget some established recommendations based on preconceived ideas, that lead to actions lacking a pathophysiological basis (Table 1).

Catecholamine storm management

During the establishment of BD a series of hemodynamic disorders derived from the rostrocaudal evolution of cerebral ischemia occurs. When nucleus of vagus is destroyed, the sympathetic system remains unopposed, producing the so-called "catecholamine storm" (CS) characterized by arterial hypertension, tachycardia, increased cardiac output (CO) and myocardial oxygen consumption.^{8,9} The clinical manifestations are most important in those patients in whom the evolution toward BD has been very abrupt or rapidly progressive.¹⁰ As this phase precedes the destruction of the medullary vasomotor centers with the consequent neurogenic shock, typical of BD,¹¹ numerous revisions or do not mention the possibility of an active treatment of CS^{3,12-23} or recommend not to treat to it arguing its brief duration and the subsequent risk of aggravate or difficult the control subsequent hypotension.^{24,25}

The CS causes a serious imbalance between myocardial oxygen demand and supply, which triggers metabolic functional alterations and sometimes structural heart damage, even in young people without heart disease. In addition, the sudden increase in pulmonary vascular resistance may lead to right ventricular dysfunction and elevation of systemic vascular resistance is one of the pathogenic factors of

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