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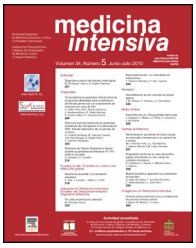

POINT OF VIEW

Cranioplasty with bandaging: New forms of limitation of life support and organ donation☆

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KEYWORDS
Ethics;
Organ donation;
Brain death;
Life-sustaining treatment limitation

Abstract Most of the transplanted organs are obtained from brain death (BD) donors. In neurocritical patients with catastrophic injuries and decompressive craniectomy (DC), which show a dreadful development in spite of this treatment, DC could be a futile tool to avoid natural progress to BD.

We propose whether cranial compressive bandage (*cranioplasty with bandage*) could be an ethically correct practice, similar to other life-sustaining treatment limitation (LSTL) common methods.

Based on a clinical case, we had contacted the Assistance Ethics Committee and some of the bioethics professionals and asked them two questions: 1) Is ethically correct to perform a *cranioplasty with bandage* in those patients with LSTL indication? 2) Thinking in organ donation possibility, is this option preferable?

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Conclusions: (1) *Cranioplasty with bandage* could be considered an ethically acceptable LSTL practice, similar to other procedures. (2) It facilitates organ donation for transplant, which provides for value-added proposition because of its own social good. (3) In these cases, it is necessary to know previous patient's will or, in absentia, to obtain family consent after a detailed procedure report.

PALABRAS CLAVE
Ética;
Donación de órganos;
Muerte encefálica;
Limitación del tratamiento de soporte vital

Craneoplastia con vendaje. Nuevas formas de limitación del tratamiento de soporte vital y donación de órganos

Resumen La mayoría de los órganos trasplantados proceden de donantes fallecidos en muerte encefálica (ME). En pacientes neurocríticos con lesiones catastróficas y craniectomía descompresiva (CD) que tienen una pésima evolución a pesar de todo el tratamiento, la CD puede llegar a ser una medida fútil que impida la evolución *natural* hacia la ME.

Planteamos si realizar un vendaje compresivo pericraneal (*craneoplastia con vendaje*) puede ser una práctica éticamente correcta y comparable a otras formas habituales de limitación del tratamiento de soporte vital (LTSV).

A partir de un caso clínico, realizamos una consulta al Comité de Ética Asistencial y a expertos bioéticos, formulando las siguientes cuestiones: 1) En pacientes que se decide la LTSV ¿es éticamente correcto realizar una craneoplastia con vendaje? 2) ¿Es preferible esta opción considerando una posible donación de órganos?

Conclusiones: 1) La *craneoplastia con vendaje* puede ser considerada una forma de LTSV éticamente aceptable y similar a otros procedimientos 2) Facilita la donación de órganos para trasplante, lo que aporta valor añadido por el bien social correspondiente 3) En estos casos, es necesario conocer las instrucciones previas del paciente y en su ausencia, obtener el consentimiento familiar por delegación tras un informe detallado del procedimiento.

''The fact that things are so does not mean that they have to stay that way''. Bertolt Brecht. The life of Galileo.

Organ transplantation is a consolidated treatment for terminal organ failure. It clearly improves patient's quality of life, and in the case of vital organs constitutes the only possible treatment option. Transplantation currently offers excellent results, reaching a survival rate of 48% after 20 years in the case of liver transplantation[1] and of 53% after 10 years in the case of heart transplantation.[2] Spain, with 35.3 donors per million of population (pmp) in the year 2011,[3] has the highest donor rate in the world, while the United States has a rate of 26.3 pmp and the European Union has an average donor rate of 18.1 pmp. Up until 1 January 2012, a total of 81,909 organ transplants had been carried out in Spain.

Globally, the main problem facing transplantation is the scarcity of organs—a situation causing the death of about 10% of all patients while on the waiting list. The demand for organs moreover increases every year, since transplantation has become a routine and generalized practice. Approximately 90% of all organs transplanted in Spain come from brain death (BD) donors, but this source has a limited potential for producing candidate organs. In order to satisfy the demand on the part of patients on the transplant waiting list, the Spanish National Transplant Organization (*Organización Nacional de Trasplantes*, ONT) and other international organizations have developed strategies designed to increase the donor pool by harvesting organs from non-heart beating donors (Maastricht types II and III) and live donors.[4]

The age of BD donors has gradually increased in this country. In the year 2011, 53.7% of the donors were over 60 years of age, 27.9% were between 45 and 59 years of age, and only 18.4% were under 45 years of age.[5] This means that a large proportion of donors are of the ''expanded'' type, resulting in a shortage of thoracic organs in particular, since these are the transplants that prove most demanding in terms of donor age.

Intensive Care Units (ICUs) constitute a key element in any transplant program, since it is in the ICU where BD is diagnosed,[6] and where the multiorgan donor is maintained. In Spain, almost 80% of all transplant coordinators are intensivists.[7]

In neurocritical patients with intracranial hypertension syndrome (ICH), the European Brain Injury Consortium[8] and the American Association of Neurological Surgeons[9] propose decompressive craniotomy (DC) as a second level management measure. In recent decades, DC has been the subject of controversy, and although it clearly reduces intracranial pressure (ICP) and shortens the stay in the ICU, there is debate regarding the functional outcome of the technique.[10–15] In any case, and despite the controversies, extensive DC (frontal-subtemporal-parietal-occipital) is increasingly being used in the ICU. This in turn is one of the explanations given for the decrease in BD donors, which in Spain have dropped from 32 pmp in the year 2001 to 29.2 pmp in 2010.[16]

In patients with devastating neurological injuries and an extremely poor prognosis, the maintenance of DC prevents ICP from reaching levels high enough to produce cerebral circulatory arrest and therefore BD. In these cases,