

Donation after Cardiac Death

Non-Heart-beating Organ Donation Deserves a Green Light and Hospital Oversight

EACH year in the United States approximately 6,000 patients die while awaiting an organ transplant.¹ In response, the Institute of Medicine (IOM; Washington, DC), the Center for Medicare and Medicaid Services (formerly known as the Health Care Financing Administration; Baltimore, Maryland), and the Society of Critical Care Medicine (Des Plaines, Illinois) have called for a broader organ donation strategy—one that would allow for both brain-dead donors and donors who have died by cardiac criteria.²⁻⁵ In this issue of ANESTHESIOLOGY, Dr. Gail Van Norman describes the circumstances under which anesthesiologists are becoming involved in non-heart-beating cadaver organ donation (NHBCD).⁶ Consistent with the IOM's recommendations, she concludes that hospitals must develop clear and consistent policies to guide this practice, so that both real and perceived conflicts of interest can be avoided. She also cautions that NHBCD (or *donation after cardiac death*, as the US Government Health Resources and Services Administration now calls the practice) should not interfere with optimal palliative care and argues that operating room anesthesiologists are not necessary for, and should not be involved in, NHBCD organ recovery.

Although NHBCD is often characterized as a new practice, in the early days of organ transplantation, all organs were obtained from living donors or from patients declared dead following the irreversible cessation of cardiopulmonary function. Since the technology at the time could not protect against warm ischemia, many of the organs were of poor quality. The concept of brain death emerged in the late 1960s as a strategy for allowing the procurement of organs from patients with devastating neurologic injury whose cardiopulmonary functions could be maintained by life support, thereby avoiding the problems of warm ischemia. Due to better transplant outcomes, donation after brain death soon became the standard criterion for determining potential donor suitability in the United States. Now, with new technologies and procedures that mitigate the problem of warm ischemia, there is renewed interest in NHBCD.

This Editorial View accompanies the following article: Van Norman GA: Another matter of life and death: What every anesthesiologist should know about the ethical, legal, and policy implications of the non-heart-beating cadaver organ donor. ANESTHESIOLOGY 2003; 98:763-73.

Accepted for publication November 25, 2002. The author is not supported by, nor maintains any financial interest in, any commercial activity that may be associated with the topic of this editorial.

Empirical Research Could Shed Light on Potential Harms

Van Norman's article suggests that she has grave doubts regarding NHBCD. Indeed, she concludes by saying that ". . . transplantation practices have outpaced the debate, and we are left in the uncomfortable position of regulating through protocols a practice that still raises serious ethical doubts."⁶ My own perspective is that NHBCD should be an available option for patients and their families, as long as it is offered in ways that are consistent with IOM recommendations and it is monitored through ongoing hospital oversight.

Van Norman's most compelling claim is that NHBCD raises potential conflicts of interest, particularly regarding the determination of "futility." In brain death cases, the patient is dead before organ donation is discussed with the family. However, in donation after cardiac death, death occurs only after further care is deemed futile, and an explicit decision to withdraw life support has been made. Therefore, the IOM and the authors of other published commentaries insist that discussions about organ donation after cardiac death should not occur until after the decision to withdraw life support has been reached. It is critical that the prognosis of hopelessness is, in fact, accurate, that the patient received the best possible care, and that the prospect of organ donation did not influence the decision to withdraw life support. I agree with Van Norman that in NHBCD, it is arguably more difficult to separate the interests of the patient from the interests of the potential organ recipient than it is in cases of brain death donation.

However, an evaluation of the facts could shed some light. It is possible to monitor the practice of NHBCD in order to determine whether these new protocols do or do not cause harm to patients or families. Indeed, the IOM report presents a detailed blueprint for such a research agenda.⁷ In theory, the ethical dangers are there, but a national effort and local oversight within hospitals should be established to determine how real they are.

Non-Heart-beating Organ Donation May Help Alleviate the Organ Shortage

Although Van Norman sets important parameters for NHBCD, in key places her argument and the general tone of the article seem unduly negative and could decrease interest in NHBCD. For example, she cites only one study to support the claim that the potential NHBCD yield may be small, yet other studies are more optimistic. For example, in a chart review, Campbell and Sutherland⁸ found that 17 of 209 (emergency room or intensive care

unit) patients who died would have been suitable for NHBCD. Assuming that some of these potential donors would be medically ruled out or lost as a result of lack of family consent, Campbell and Sutherland⁸ estimated that it would have been likely for 10 of these 17 to become actual donors. Since 10 donors would yield 20 kidneys, the particular hospital studied actually would have increased their yield that year by a full 48%. Other chart reviews also predict substantial potential. Kowalski *et al.*⁹ audited death records at the Washington Hospital Center (Washington, DC) from 1992 to 1994 and concluded that there were 3–6 times as many potential NHBCD donors as brain-dead donors in their trauma center. In The Netherlands, NHBCD accounts for 25% of all donated kidneys.¹⁰ Since brain death criteria severely limit the pool of potential donors (yielding very small numbers of donations in any one hospital in a given year), even a few new NHBCD cases can have a very significant impact on overall donation rates. Thus, without further study, it is premature to dismiss the potential of NHBCD.

Similarly, Van Norman cites studies of public attitude toward organ donation, revealing that over 65% of survey respondents state their willingness to become organ donors if declared brain dead, but only 47.3% say that they would be willing to donate as a NHBCD.¹¹ However, if almost half of the people in a potential NHBCD situation were willing to donate their organs, the contribution could be highly significant—particularly because over 70% of deaths in US hospitals are now “negotiated” deaths, meaning that they involve some kind of explicit discussion with the patient (when capacitated) or family about whether to pursue or terminate life support.¹²

Moreover, language is important. Referring to organ recovery as organ “harvesting” is inherently disrespectful to patients and cruel to families. Donors are deceased persons, not crops. At best, this semantic choice is medicocentric; it may also belie (and may stimulate) a fundamental bias against organ donation in general and against NHBCD in particular.

There are Strong Ethical Arguments for Offering NHBCD

Van Norman mentions these arguments but does not emphasize them. The most important argument is that families and, in some cases, patients ask for this option. One of the earliest NHBCD protocols was developed at the University of Pittsburgh in response to family requests to donate their loved one’s organs after death, following withdrawal of life support. Empirical studies have shown that families of brain-dead donors report that organ donation helped to give meaning to their personal tragedy.^{13–15} It is therefore reasonable to infer that families of NHBCD donors would also find psychological and spiritual comfort in their decision to donate.

Thus, the impetus for NHBCD is threefold: it not only holds the promise of decreasing the number of people who die while awaiting an organ but also represents a way of honoring patient autonomy (in instances in which patients clearly indicated a wish and communicated this intention prior to losing their decisional capacity) and fulfilling family requests to create something meaningful in the face of loss.

Non-heart-beating cadaver organ donation is similar to many other issues in medicine that are characterized by inherent, unavoidable tensions. When competing goals are equally worthy, ethical practice requires one to strive to make the best possible accommodation between them. It means establishing policies and proactively maintaining oversight to determine how well the accommodation is going and then readjusting in light of new information. The IOM has called on hospitals to establish such policies; Van Norman and others have explained the issues hospitals must face in doing so; now the work should begin.

Mildred Z. Solomon, Ed.D. Associate Clinical Professor of Social Medicine and Anesthesia, Harvard Medical School, Boston, and Vice President, Education Development Center, Inc., Newton, Massachusetts. msolomon@edc.org

References

1. Annual Report of the US Scientific Registry for Transplant Recipients and the Organ Procurement and Transplantation Network: Transplant Data 1990–1999. Rockville, MD, US Department of Health and Human Services, Health Resources and Services Administration, Office of Special Programs, Division of Transplantation; Richmond, VA, United Network for Organ Sharing, 2000
2. Institute of Medicine: Non-Heart-Beating Organ Transplantation: Medical and Ethical Issues in Procurement. Washington, DC, National Academy Press, 1997
3. Committee on Non-Heart-Beating Transplantation II: The Scientific and Ethical Basis for Practice and Protocols, Division of Health Care Services, Institute of Medicine: Non-Heart-Beating Organ Transplantation: Practice and Protocols. Washington, DC, National Academy Press, 2000.
4. Medicare and Medicaid programs; hospital conditions of participation; identification of potential organ, tissue, and eye donors and transplant hospitals’ provision of transplant-related data—HCEA. Final rule. *Fed Regist* 1998; 63:33856–75
5. DeVita MA, Webb SA, Hurford WE, Truog RD, Wlody GS, Hayden CT, Sprung CL, Brill RJ, Beals DA, Rothenberg DM, Friedman AL, Silverstein DS, Kaufman DC, Perkin RM, Rosenbaum SH, Cist AFM, Samotowka M, Teres D, Unkle DW, Burns JP, Wallace TE. Recommendations for nonheartbeating organ donation. The Ethics Committee of the Society of Critical Care Medicine. *Crit Care Med* 2001; 29:1826–31
6. Van Norman GA: Another matter of life and death: What every anesthesiologist should know about the ethical, legal, and policy implications of the non-heart-beating cadaver organ donor. *ANESTHESIOLOGY* 2003; 98:763–73
7. Solomon MZ: Maximizing benefits, minimizing harms: A national research agenda to assess the impact of non-heart-beating organ donation. *Non-Heart Beating Organ-Transplantation: Practice and Protocols*. By the Committee on Non-Heart-Beating Transplantation II: The Scientific and Ethical Basis for Practice and Protocols, Division of Health Care Services, Institute of Medicine. Washington, DC, National Academy Press, 2000, pp 67–86
8. Campbell GM, Sutherland FR: Non-heart-beating organ donors as a source of kidneys for transplantation: A chart review. *CMAJ* 1999; 160:1573–6
9. Kowalski AE, Light JA, Ritchie WO, Sasaki TM, Callender CO, Gage F: A new approach for increasing the organ supply. *Clin Transplant* 1996; 10:653–7
10. Koostra G: The asystolic, or non-heart-beating donor. *Transplantation* 1997; 63:917–21
11. Seltzer DL, Arnold RM, Siminoff LA: Are non-heart-beating cadaver donors acceptable to the public? *J Clin Ethics* 2000; 11:347–57
12. Wennberg J, Cooper M, eds.: *The Dartmouth Atlas of Health Care in the United States*. Chicago, American Hospital Publishing, 1996
13. Bartucci M: Organ donation: A study of the donor family’s perspective. *J Neurosci Nurs* 1987; 19:305–9
14. Coolican M: Facing the death of a loved one. *Crit Care Nurs Clin North Am* 1994; 6:607–11
15. Riley L, Coolican M: Needs of families of organ donors: Facing death and life. *Crit Care Nurse* 1999; 19:53–9