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Death provides renewed life for some, but ethical hazards for transplant teams

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There seems to be little doubt that the public is broadly in favour of organ and tissue transplantation. For end-stage disease of at least three organs (heart, kidney and liver), transplantation is now established as the norm of treatment. This creates an obligation for our health care system to provide organs, an obligation that has become more insistent with improved outcomes and rising public expectations. Are we doing all we can to provide this form of treatment? If not, are we shirking a duty? Is this a problem just for transplantation services, or for us all? At what point does failure to do everything possible to meet this obligation become negligence? Are we approaching that point now?

I believe we should increase efforts on a number of fronts to obtain more vital organs and tissues after death. These might include (a) a national procurement program (perhaps on the model of Spain¹), coordinated with new federal and provincial initiatives, such as those announced by BC for 1999² and recently reported by the Parliamentary Standing Committee on Health³ and (b) developing ways to obtain permission to use organs from those who have died from irreversible cardiopulmonary arrest — now termed non-heart-beating death — using the traditional criteria for the determination of death. Either of these options would allow us to avoid (c) legislation of “presumed consent,” which would make it necessary for those who do not wish their organs to be used at death to opt out in advance. In this issue, Drs. Graham Campbell and Francis Sutherland⁴ explore the possibilities of option b. Theirs is the second Canadian study⁵ to show evidence of a potential

source of organs from those who die in emergency departments and in intensive care or cardiac care units — the non-heart-beating source — to supplement the supply from brain-dead cadavers in which the heart is beating. In this non-heart-beating category are patients in whom resuscitation has failed or for whom life support has been deemed futile and discontinued with the agreement of family decision-makers. The non-heart-beating source remains essentially unused in North America (e.g., it accounts for less than 3% of kidney transplants)⁶ unlike in many parts of the United Kingdom and Europe, where in some centres it accounts for 40% of kidney transplants.⁷ The success rate of kidney transplants from a non-heart-beating source is comparable to that of transplants from a heart-beating source when the non-heart-beating source kidneys are further selected by tests carried out during ex-vivo machine perfusion before implantation.⁸

The exploration of new possibilities suggested by Campbell and Sutherland is also timely in light of the disturbing questions raised by Truog⁹ and others¹⁰⁻¹² about the criterion of “irreversible function of the whole brain and brain stem,” or so-called brain death. Although it is not the case that our use of the brain death diagnosis has led to patients being declared dead who had even the remotest chance of recovery, the issue of brain death is complex, one that involves philosophical concepts, physiological definitions, legal definitions and clinical criteria. Some commentators have pointed out that we often fail to wait for all the components of brain death to develop, such as accompanying diabetes insipidus, loss of all vasomotor tone, loss of



other neurohumoral effects and loss of temperature control. These components are additional evidence of residual brain function but are not normally considered essential criteria for the brain death diagnosis. The pathophysiology of incipient brain death is complicated by the “autonomic storm” and altered hormonal function arising from increasing intracranial pressure.¹³ Further, our increasing ability to compensate for the loss of brain stem functions by mechanical and pharmacologic means introduces new difficulties in diagnosing brain death.¹⁴ Recently, Bernat came to the defense of the “whole brain and brain stem” concept by redefining death as “permanent cessation of the critical functions of the organism as a whole”; by this definition, relatively intact neuro-posterior-hypophyseal function is considered a noncritical function,¹⁵ but this perhaps also begs the question.

Traditional criteria for cardiopulmonary arrest are accepted by most, whether they occur as a result of a lethal disease process (which Campbell and Sutherland term “uncontrolled”) or as a consequence of a decision to withdraw life support (“controlled”) from those who cannot benefit further and have irreversible brain damage. One of the problems that Campbell and Sutherland specifically elect not to address is the following: How much time is required to establish complete “death of the brain and brain stem” after final cardiopulmonary arrest? Death must be established before one can begin such postmortem preservative measures as immediate cold perfusion, elective ventilation — when there is prior agreement, a donor card or legislation that permits such interventions on a dead body¹⁶ — or immediate organ procurement in a previously prepared operating room.¹⁷ This timing problem is further complicated by the fact that it would be inappropriate and unethical to apply the criterion of “failed resuscitation” in order to establish irreversibility when the family has decided against such measures.

In such situations, in my opinion, ethics dictates the following. (a) Organs should not be procured from bodies where there is life. (b) Family members or other appropriate third parties must be fully informed about and assist in making decisions concerning those who are dying while incompetent. (c) The same family members, by means of a separate decision, should decide whether organs may be procured after death, unless there is a valid advance directive from the patient that they should be so used. In the latter situation, it is still also humane to ask for family consent. (The percentage of family refusals falls to a very low figure when the question is asked in a way that points out that the dead loved one has thought about his or her organ donation in advance and asks if the family have any reason to suppose his or her declared wish should not be observed.) (d) No measures should be carried out on the dying person, even with family consent, that are not directed at serving the best interests of the dying person. In proposing these criteria, I am aware of the difficulties in defining such terms as “life,” “fully informed,” and “best interests.”

To preserve the ethical values of nonmaleficence and

fully informed consent, it is clearly very important that the professionals involved have no conflicts of interest with the processes of organ transplantation. New initiatives may increase the degree of involvement of ethics committees or their equivalent, and committee members will need special education in the issues.¹⁸ This may require more resources. Such persons would be responsible for coordinating decision-making between the treatment team, the family and the transplant team, for considering the other needs of family members and for ensuring that the dead body is treated with dignity and respect. They seem less essential when the criteria are objective as is supposedly the case with the diagnosis of brain death.

Our faith in the supposedly objective diagnosis of brain death leads us to remove organs from the dead body while the heart is still beating. We now need to take seriously the question of whether the criteria to establish brain death are as reliable as we claim them to be. If they are not as satisfactory as we once thought, the whole matter should be brought into debate.

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