

TRANSPLANTATION AND THE TRAUMA SURGEON

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The number of satisfactory vascular organs suitable for organ transplantation can be increased appreciably by a close working relationship between traumatologists and transplant surgeons. Benefits will derive from more precise and rapid field management of brain-injured patients, with subsequent appropriate stabilization. If brain death is declared, prompt referral for organ donation with optimal management should result in well-functioning organs for transplantation.

A defined team approach with well-defined protocols could solve most of the medical and moral dilemmas. Compassionate emotional support should be provided for families, particularly minorities, and should extend to inexperienced staff. Underlying these goals are a strong institutional commitment to staff education and an understanding of the lifesaving role that organ transplantation can play.

Key words • organ transplant • trauma surgeon • organ donation

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Vascularized, whole organ transplantation has become an acceptable method of managing a broad spectrum of life-threatening and lethal diseases, including end-stage renal disease, heart and liver disease, and more recently diabetes mellitus.

Major strides have been made in perfecting tissue matching, organ preservation, surgical technique, and immunosuppression.¹ As a result of this success, close to 15 000 renal, 1200 cardiac, and 255 pancreas transplant recipients are awaiting organs.² Despite emotional pleas from anguished patients and their families, the gulf between those on the waiting lists and the availability of suitable donors remains wide.

Of the potential 20 000 donors each year, each of whom could provide lifesaving organs, only 15% successfully fulfill that role.³ Recent publications have emphasized the importance of trauma victims as organ donors. Results indicate improved kidney transplant outcome when organs are retrieved from trauma donors.⁴ The main reason postulated for these improved outcomes is that the majority of trauma deaths involve members of the young, male, previously healthy population.

Because traumatic brain injury may result in suitable organ donors, trauma surgeons and the transplant community have developed a natural relationship over the last 30 years. This relationship, developed out of necessity in most institutions, has been informal. Because of the lack of structure, opportunities to make use of the advances in physiologic management of potential organ donors may have been overlooked.⁵

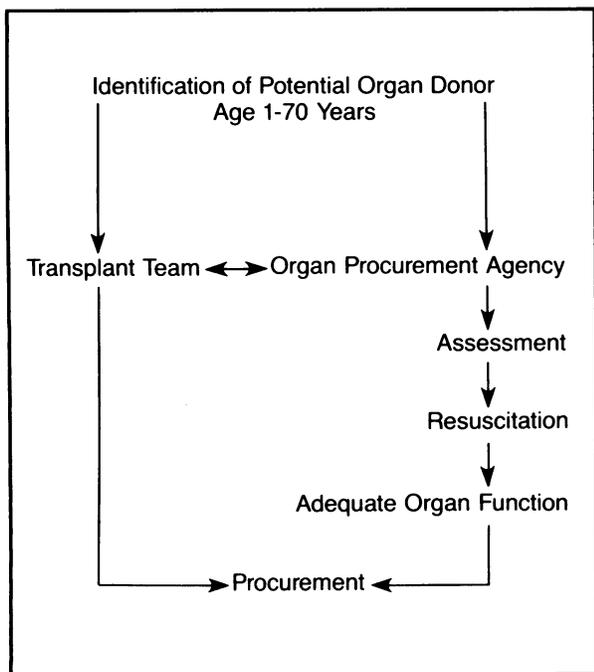


Figure. Management of the organ donor.

RECOGNITION AND REFERRAL

By far the greatest difficulty in the organ donation process is referral. The blame has been clearly attributed to the attitudes of health professionals. Organ donation relies on the exercise of judgment by medical personnel with regard to suitability, and the primary factor limiting the supply of vascular organs suitable for transplantation is the less than enthusiastic cooperation of medical professionals.⁶ A recent survey of 195 physicians and nurses likely to be involved with organ donors at a university hospital showed that only 35% correctly identified the legal and medical criteria for determining brain death.⁷ This study was conducted in a major referral center and focused on individuals who were likely to be involved in organ procurement. Undoubtedly, the top priority in specialty care units is the preservation of life. Brain death is equivalent to legal death; however, health care professionals tend to remain focused on other physiologic parameters. This has made death determination less than perfectly understood.

Currently, no data are available to evaluate the depth of understanding that prehospital personnel and those in primary care facilities, particularly non-designated trauma centers, have of the concept of brain death. There may be significant confusion about the clinical application of the concept of brain death at these levels

TABLE. CONTRAINDICATIONS FOR ORGAN PROCUREMENT

Sepsis
Human immunodeficiency virus infection
Guillain-Barré syndrome
Intravenous drug abuse
Malignancy

of care. At this grass roots level, failure to recognize potential organ donors could lead to nonaggressive resuscitation and loss of a significant number of lifesaving organs.

Organs, which may have provided entirely satisfactory outcomes had they been transplanted, are being discarded because of value judgments made by medical personnel.¹ For this reason, traditional, arbitrary criteria for donor exclusion have come under question. Appreciation of these developments and incorporation of this information into clinical practice will require close cooperation between traumatologists and their transplantation colleagues.

POTENTIAL MORAL AND ETHICAL DILEMMAS

The practice of medicine remains a humane, moral, and sometimes emotional arena. Required request laws have been enacted in all 50 states and reflect a strong level of public support for organ donation. The laws were enacted to provide an unhindered path for families to fulfill their need for organ donation. Despite acceptance of these principles nationwide, some hospitals are still reluctant to implement these policies fully. Physicians primarily have been responsible for this reluctance.^{8,9}

Many of the issues surrounding brain death determination and subsequent organ donation are judgmental. They involve the potential of withholding needed treatment and potential conflict of interest between trauma surgeons and transplant surgeons.

Clearly, these issues are best debated within a well-defined professional relationship. The trauma surgeon's primary goal is to save life and prevent disability. Maintaining optimal physiologic status in a patient through brain death and, subsequently, as a potential organ donor should not present any conflict. On determination of brain death, the trauma surgeon should initiate potential organ retrieval by contacting the appropriate organ procurement team members.

The individual professionals of a health-giving team are best able to provide the medical, physiologic, and compassionate emotional support for the patient in

need of a transplant, the potential organ donor, and the families.¹⁰

MANAGEMENT

Proper management of the potential organ donor begins with early recognition by the trauma surgeons (Figure). This allows timely assessment and appropriate management for optimal organ function at retrieval.⁵ Contraindications for organ procurement include sepsis, human immunodeficiency virus infection, Guillain-Barre syndrome, a history of intravenous drug abuse, and malignancy unconfined to the skin and brain (Table).

A team of well-trained professionals functioning according to a formal protocol will assure satisfactory vascularized organs suitable for transplantation. This team should consist of a transplant/procurement surgeon, a senior member of the resident staff, a physician assistant, and a member of the clergy. The emotional needs of the bereaved family also are more likely to be addressed if preparations are made beforehand.

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