Non Heart Beating Organ Donation in Adults: A Clinical Practice Guideline

Abstract

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Non heart beating organ donation (NHBD) occurs when a patient donates organs following the determination of death by cardio-respiratory criteria. It is also known as Donation after Cardiac Death (DCD) or Donation after Circulatory Death (DCD). This is distinct from Donation after Brainstem Death (DBD), which until 2011, accounted for all cadaveric organ donation from deceased persons donated within the Republic of Ireland. NHBD is an important initiative that has the potential to be life-saving. When compared to international protocols, the NHBD protocol at Beaumont Hospital is both conservative and restrictive. It offers an alternative when conditions of brainstem death (BSD) cannot be satisfied and, since implementation a number of successful transplants have been performed from NHBD donors.

Introduction

This clinical practice guideline is derived from the NHBD protocol approved by Beaumont Hospital Clinical Ethics Forum in 2011 and endorsed by the Intensive Care Society of Ireland in 2012. This guideline has been welcomed by the Medical Council of Ireland, the Health Service Executive, the HSE National Organ Donation and Transplantation Office. Its development is cited as a key recommendation in an external review of transplantation services 2011. It has also received support from the National Directorate of Nursing and Midwifery and the Coroner’s Society of Ireland. In the United Kingdom, NHBD is supported by the Intensive Care Society, in Australia and New Zealand it is supported by their societies of intensive Care Medicine (ANZICS). In North America, NHBD has been supported by three Institute of Medicine committees, the American Medical Association Council on Ethical and Judicial Affairs, the American Academy of Neurology, and the Society of Critical Care Medicine.

Maastricht Category 3: These patients have devastating non-recoverable neurological injury, typically secondary to traumatic brain injury (TBI), but occasionally due to hypoxic ischemic encephalopathy (HIE). Poor prognostic factors in HIE include myoclonic status epilepticus, loss of pupillary or corneal reflexes and extensor posturing, a high neurocutaneous score or after day 6 if the patient was subjected to induced hypothermia.

Maastricht Category 4: These patients are likely to fulfill the criteria for BSD, however brainstem testing cannot be performed due to the degree of haemodynamic instability or imminent cardiac arrest. NHBD may represent the only feasible way that these patients may donate organs.

Consent

Every attempt will be made to ascertain the patients wishes with respect to organ donation. Unless NHBD has support of all the family, then it would not be pursued; assurances are given that they may change their minds at any time. Premortem blood sampling and systemic heparinisation are permissible and are specifically addressed in the consent process.

Time Out Process

The withdrawal process will be the responsibility of the Transtoporium staff. The objectives are to clarify roles and ensure the requisite equipment is available. It is essential that any staff member who may have personal or ethical difficulties with organ donation be given the opportunity to abstain and allow a replacement to be found.

The Determination of death

Asystole is defined as absent or near absent electrical activity with no evidence of cardiac output i.e. absent peripheral pulsation or arterial line trace. Death is certified after 5 minutes of monitored asystole, pulselessness, apnoea, absent pupillary reactions, corneal reflexes and absent response to supraventricular pressure.

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Stand-down time
This is a second 5 minute period after the diagnosis of death. In this time the patient continues to be monitored for breathing movements or return of an arterial waveform. Should this occur, a further observation period of 5 minutes is mandatory after this activity has disappeared, before proceeding with organ donation. This stand-down time may be transferred to the patient to the theatre where sterile preparation and draping may begin. No incision will be made until this 5 minute stand down has elapsed.

Care of the body of the deceased patient
The remains of the deceased patient are cared for in accordance with current practice. The patient’s family may wish to spend time with the deceased before the remains are taken to the mortuary.

Education, Audit and Clinical Governance
Perhaps the key to success is education through lectures, small group sessions and the widespread dissemination of a locally agreed policy on NHBD. Some have ethical concerns with respect to NHBD: specifically the determination of futility, blood sampling and heparin administration. Agreement must be reached between at least three consultants with respect to futility. All patients have intravascular access for blood sampling and volumes of blood drawn are small. There is no evidence that heparin at the time of withdrawal of life sustaining therapies has any impact on the patient or shortens the patient's life.

Regular in-service sessions and in particular after event reviews are especially helpful in our own experience to promote NHBD. In all hospitals considering a NHBD program, an oversight committee should be established. The local ethics committee as well as other management structures may need to approve the protocol. Finally, there should be a clear pathway of audit and clinical governance and the protocol subjected to regular review.

The intensive care community holds a vital fiduciary role in organ donation on behalf of the lay community. NHBD is nothing new: education, audit, the endorsement of learned bodies and the publication of national standards will, in time see its phased reintroduction.

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