



Ethical Justification of Heart Donation After Circulatory Death

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BACKGROUND

Deceased organ donation relies on two distinct paradigms, each of which relies upon a different legal definition of death.

Donation after brain death allows for “beating heart donation”, because death is declared prior to removal of life sustaining therapies (LST). This is how heart donation has traditionally proceeded.

Donation after circulatory death (DCD) involves removal of LST prior to declaration of death, which occurs after 2-5 min of pulselessness. Liver, lung and kidney transplants have long been done this way, however heart transplantation after circulatory death has only recently begun in the US and has been met with controversy.

ETHICS LITERATURE REVIEW

Arguments Against DCD *in general*:

- DCD donors are not “really dead”
- We don't know that cessation of circulatory function is truly irreversible
- DCD Violates the “Dead Donor Rule”
- Antemortem interventions required for DCD are for benefit of the recipient, not the donor, and are therefore unethical
- Removal of LST for the purpose of organ donation is an act of killing and is therefore ethically unacceptable.
- The public will not accept DCD

Ethical Justification of DCD *in general*:

- DCD donors are permanently dead – it is not permissible to resuscitate a patient who rejects resuscitation, “irreversibility” is not relevant.
- DCD is in keeping with the wishes of patients and families, who suffer real harms when DCD fails (this takes place in up to 40% of cases)
- If it is no longer in the patient's best interest to be alive, removal of organs does not further violate this interest

Challenges to the Dead Donor Rule:

- DDR was created to facilitate organ donation while protecting donors, it no longer does so.
- Redefining death in order to satisfy DDR does not protect donors
- Procedural complexity required to “satisfy DDR” is not meaningful and satisfies only “letter” of the rule, rather than its spirit.
- Intellectually honest approach would be to define conditions where organs can be removed, without relying on death.

Heart donation after circulatory death is ***ethically acceptable***. The most robust ethical justification for heart donation after circulatory death is the ***consent of the donor (or surrogate)*** rather than reliance on any definition of death.

Imminent death donation would be a more straightforward, ethically sound approach.

ETHICAL JUSTIFICATION OF HEART DCD

-Once controversial – DCD protocols for liver, kidney and lung transplantation are now practiced nationwide and account for approximately 30% of organs transplanted at UW, with excellent results. There is little reason to think heart DCD will be different.

- There has never been documented auto-resuscitation of the heart after 60s of pulselessness – DCD heart donors are observed for an additional 2-4min after this. Declaration of death has never required *proving* that a pulse *cannot* be restored by artificial means.

-According to the Uniform Determination of Death Act (UDDA, 1980), death by circulatory criteria requires “irreversible cessation of circulatory and respiratory function”.

- Restoring a pulse to a heart outside the donor's body does not restore circulatory and respiratory function to that donor's body, thus it does not negate their death
- DCD lung transplants involve re-intubating and ventilating the donor after declaration of death, this is not felt to undermine their status as deceased donors.
- Even restoring a pulse to a DCD donor's heart in situ after declaration of death does not restore circulatory and respiratory function in the integrated manner that is required to sustain life

-If a donor or their authorized surrogate rejects LST and subsequent resuscitative efforts, then pulselessness is irreversible in that it is *prohibited* to reverse it. If they or their surrogate have consented to interventions directed at transplant, that is *all* that is permissible.

-It is in the donor's best interest that they or their authorized surrogate determine the final disposition of their body. When this interest outweighs their interest in remaining alive, it is acceptable to allow organ donation.

- Heart donation is a societal good and is widely supported by the public at large – objections to DCD heart donation are largely confined to academia.

IMMINENT DEATH DONATION

Proposed decades ago as an alternative to redefining death in order to facilitate deceased organ donation, “Imminent Death Donation” is an intellectually honest way of honoring a patient's desire to donate their organs without the strained choreography of DCD.

Successful IDD protocols would require the patient be in a state where withholding/withdrawing LST is in their best interest (as determined by patient & surrogate) but would not require they be brain dead. Grafts could be procured while still adequately perfused by the donor, after which, the donor would be allowed to die.

Furthermore, terminally ill patients who would otherwise be screened out of live donation programs could donate non-vital organs under IDD.

HEART DCD IN THE US AND WORLDWIDE

Colorado, 2008

- Colorado Children's Hospital publishes a series of 3 cases in NEJM in which LST was removed from infants who were neurologically devastated 2/2 HIE at birth and after declaration of circulatory death, their hearts were successfully transplanted into 3 children with hypoplastic left heart syndrome.
- “Hands off period” reduced from 3min in the first case, to 1.25min in the 2nd and 3rd case
- Met with controversy, no further DCD heart donation in the US until 2020.

British, Australian, Belgian Experiences

- Largest case series is out of Papworth, UK, who have done 70 DCD Heart Transplants (in adults) between 2014-2018.
- This group has done both direct procurement of the heart with ex-situ perfusion, as well as in-situ reperfusion of the heart, which is more controversial
- Belgian group in Liège exclusively does in-situ reperfusion followed by cold storage of the heart
- Australian group only does ex-situ reperfusion of the heart

January 2020 – DCD Heart Transplants in the US

- As part of a multicenter trial, Duke, Massachusetts General Hospital and the University of Wisconsin all performed and publicly announced successful DCD heart transplants.