Heart Donation Without the Dead Donor Rule

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Donation of vital organs is currently governed by the dead donor rule (DDR). Donors must be determined to be dead according to established legal criteria and medical standards before procurement of vital organs for transplantation. Most donors are determined to be dead by neurologic criteria: the irreversible cessation of all functions of the entire brain. In response to a shortage of brain-dead donors, vital organs increasingly have been procured from donors declared dead according to circulatory criteria after withdrawal of life-sustaining treatment (LST). Protocols for donation after circulatory death (DCD) typically involve patients on mechanical ventilation with severe neurologic damage short of brain death, as in the case of Mr Sklavin. After withdrawal of life support and cessation of circulation, a waiting period of usually 2 to 5 minutes is required before organs are retrieved. Hearts rarely have been procured under DCD protocols, although hearts of infants have been transplanted successfully in some controversial cases [1].

“irreversible.” If cessation of circulation is irreversible, it also is permanent; but the converse is not necessarily true [3].

There are even more compelling reasons to argue that the DDR is routinely being violated in the case of brain-dead donors. With mechanical ventilation, brain-dead individuals maintain a wide array of biological functions, including circulation, respiration, wound healing, infection fighting, temperature regulation, secretion of neurohormones, and even gestation of a fetus for up to 3 months. They are not dead according to the established biological conception of death [4]. Although detailed examination of the status of brain-dead donors lies outside the scope of this essay, it is mentioned here to indicate that compliance with the DDR is systemically problematic—the problem is not limited to the practice of transplantation under DCD protocols.

What is the upshot if vital organ donors under DCD protocols (and brain-dead donors) are not really dead, or not known to be dead, at the time of organ procurement? Strict compliance with the DDR would dictate that we stop transplanting vital organs from these donors. However, this would lead to many desperately ill patients failing to receive lifesaving or life-enhancing organ transplantation—a drastic outcome that few individuals would endorse. To be sure, it is possible to sustain the status quo by muddling through and relying on the fiction, which is not officially acknowledged, that vital organ donors are dead at the time of organ procurement. Instead of relying on a legal and moral fiction, however, we can seek an ethically sound justification for vital organ transplantation from donors who are not known to be dead. Space limitations permit only a sketch of the argument, which has been developed in detail elsewhere [4].

The key to justifying vital organ donation without the DDR is to acknowledge the causal force of withdrawing LST, particularly mechanical ventilation. The conventional view is that withdrawing mechanical ventilation, or other means of life support, merely allows the patient to die but does not cause the patient’s death. Rather, the patient’s underlying medical condition causes death. This view, however, is not credible and fails to withstand critical scrutiny.

Consider the following case. Debbie, aged 50 years, was thrown from her horse in a horse show event. She sustained a high-level spinal cord injury. The accident left her a quadriplegic and ventilator dependent. Two years later, after rehabilitation and return home, she decided that her life was no longer worth living. She arranged to be admitted to the intensive care unit of an academic medical center for the purpose of withdrawing her ventilator. Thirty minutes after being sedated and
extubated, Debbie died [5]. What caused Debbie’s death? Was it the spinal cord injury? Despite her spinal cord injury, Debbie likely could have lived for many years with continued mechanical ventilation and personal care. Withdrawing the ventilator set in motion the causal chain leading to her death, given her inability to breathe spontaneously because of the spinal cord injury. In other words, the treatment withdrawal was the proximate cause of Debbie’s death. Based on our common sense understanding of causation, withdrawing mechanical ventilation causes death in patients unable to breathe spontaneously.

The same causal account pertains to patients receiving mechanical ventilation with a much more grim prognosis than that of Debbie’s, as in the case of Mr Sklavin [6]. According to his advance directive and conversations with his wife, it is clear that Mr Sklavin would not want to live with no hope of recovery from profound neurologic injury and would want to donate his heart, along with his other vital organs. Successful heart donation is considered highly unlikely for him under a DCD protocol. Would there be anything wrong from an ethical perspective in procuring Mr Sklavin’s heart and other vital organs before stopping mechanical ventilation? Through Mrs Sklavin’s surrogate decision making, in light of Mr Sklavin’s previous expressed preferences, valid decisions have been made to stop life support and donate organs. Moreover, Mr Sklavin would be dead after withdrawal of LST regardless of whether his organs are procured. Accordingly, no harm or wrong would be done to Mr Sklavin by procuring his heart and other organs under anesthesia before withdrawing the ventilator. In this set of circumstances, absence of harm to the donor and valid consent to donation justify organ procurement before stopping life support. This would not only make possible a lifesaving heart transplantation that otherwise would not occur but also would provide greater assurance of viability for his other organs, which would be continuously perfused until they were retrieved.

Once we see that withdrawing LST, in service of patient self-determination and relief of suffering, causes the death of patients, there is no sound ethical reason for concern about procuring vital organs before treatment withdrawal. The patient is on a planned trajectory, with death as the imminent outcome. Procuring vital organs with valid consent before treatment withdrawal does not change this trajectory nor does it wrong the patient, who soon will be dead whether or not the organs are procured.

It might be objected that withdrawing mechanical ventilation does not necessarily cause death. Although this is true, the possibility of surviving withdrawal of life support does not reflect the medical conditions of current candidates for DCD. In 2 recent prospective multicenter studies of potential DCD donors in the Netherlands and the United Kingdom that included 402 cases, all patients died after treatment withdrawal [7, 8]. The median time to death was 20 to 36 minutes, and the longest time to death was < 4 days. Viable organs could not be retrieved in 17% of the potential donors in 1 of the studies, and in 38% of potential donors in the other. However, under the approach recommended here, vital organs could have been donated from all of these potential donors with procurement before withdrawing LST, and heart donation likely would have been possible in many of the cases.

The scope and limits of vital organ donation from still-living patients should be carefully defined. Limiting this practice to patients with valid decisions to stop LST and to donate organs would ensure that the interests of patients are not being sacrificed to save the lives of others.

Unbiased examination of the practice of withdrawing LST, which causes the death of patients, underwrites a rethinking of the ethics of vital organ donation. From an ethical perspective, we do not need to uphold the DDR. Abandoning the DDR and procuring organs before withdrawing LST will potentially lead to many more lives saved from transplantation and greater respect for the donation preferences of individuals like Mr Sklavin. Realizing this potential, however, will require policy changes predicated on honestly facing up to the realities of withdrawing LST and vital organ donation.

The opinions expressed are those of the author and do not reflect the position or policy of the National Institutes of Health, the Public Health Service, or the Department of Health and Human Services.

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References