



Challenges in Deactivating a Total Artificial Heart for a Patient With Capacity

Courtenay R. Bruce, JD; Nathan G. Allen, MD; Bridget N. Fahy, MD; Harvey L. Gordon, MD; Erik E. Suarez, MD; and Brian A. Bruckner, MD

The use of mechanical circulatory support (MCS) devices has increased sixfold since 2006. Although there is an established legal and ethical consensus that patients have the right to withdraw and withhold life-sustaining interventions when burdens exceed benefits, this consensus arose prior to the widespread use of MCS technology and is not uniformly accepted in these cases. There are unique ethical and clinical considerations regarding MCS deactivation. Our center recently encountered the challenge of an awake and functionally improving patient with a total artificial heart (TAH) who requested its deactivation. We present a narrative description of this case with discussion of the following questions: (1) Is it ethically permissible to deactivate this particular device, the TAH? (2) Are there any particular factors in this case that are ethical contraindications to proceeding with deactivation? (3) What are the specific processes necessary to ensure a compassionate and respectful deactivation? (4) What proactive practices could have been implemented to lessen the intensity of this case's challenges? We close with a list of recommendations for managing similar cases.

CHEST 2014; 145(3):625–631

Abbreviations: MCS = mechanical circulatory support; TAH = total artificial heart; VAD = ventricular assist device

The use of mechanical circulatory support (MCS) devices has increased sixfold since 2006.¹⁻⁵ Ethical challenges and value conflicts are becoming more common with the growing number of patients receiving device placement.³ Although improving functionality and increasing long-term survival might be expected to resolve these challenges, in many cases, the effect has been to add to the complexity.

There is an established legal and ethical consensus that patients have the right to withdraw or withhold

life-sustaining interventions when burdens exceed benefits.⁶⁻⁸ However, this consensus arose prior to the widespread usage of MCS technology, and it is not uniformly accepted in MCS cases.^{9,10} There are aspects to deactivating or withdrawing life-sustaining treatment in MCS cases that deserve unique ethical and clinical consideration. As an illustrative example, our center recently encountered the ethical challenge of an awake and functionally improving patient with a total artificial heart (TAH) who requested its deactivation: the case of Mr N.

In responding to this request, our team was confronted with addressing and weighing the following four clinical and ethical concerns: (1) Is it ethically permissible to deactivate this particular device, the TAH? (2) Are there any particular factors in this case that are ethical contraindications to proceeding with

Manuscript received May 7, 2013; revision accepted July 18, 2013.

Affiliations: From the Center for Medical Ethics & Health Policy (Prof Bruce and Drs Allen, Fahy, and Gordon), and Section of Emergency Medicine (Dr Allen), Department of Medicine, Baylor College of Medicine; The Methodist Hospital System (Prof Bruce and Drs Allen, Fahy, and Gordon), The Methodist Hospital System Ethics Program; Department of Surgery (Dr Fahy), Weill Cornell Medical College, Methodist Hospital; Division of Palliative Medicine (Dr Fahy), The Methodist Hospital; Methodist DeBakey Heart and Vascular Center and JC Walter Jr Transplant Center (Drs Suarez and Bruckner); and Texas Heart Institute (Dr Bruckner), St. Luke's Episcopal Hospital, Houston, TX.

An abstract of this study was presented at the International Society of Heart and Lung Transplantation Annual Meeting and Scientific Sessions, Montreal, Quebec, Canada, April 2013 and published in abstract form (Suarez E, Bruce C, Gordon HL, Loebe M, Bunge RR, Bruckner BA. *J Heart Lung Transpl.* 2013;32(4):S286).

Correspondence to: Courtenay R. Bruce, JD, Center for Medical Ethics & Health Policy, Baylor College of Medicine, One Baylor Plaza, MS: BCM 420, Houston, TX 77030; e-mail: crbruce@bcm.edu

© 2014 American College of Chest Physicians. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians. See online for more details. DOI: 10.1378/chest.13-1103

deactivation of the device? (3) What are the specific processes necessary to ensure a compassionate and respectful deactivation? (4) What proactive practices could have been implemented to lessen the intensity of the challenges in this case?

In what follows, we provide a narrative description of what occurred in the process of addressing the four challenges of Mr N's case from the perspective of 16 health-care professionals involved in his care.¹¹ The quotations used are from a larger, internally funded, institutional review board-approved qualitative study. The interviews were audio recorded, transcribed, double coded, and analyzed using content thematic analysis. Quotations are interspersed with our analysis of the ethical challenges of this case and descriptions of the decisions that were made. We close with a list of recommendations for managing similar cases.

THE CASE OF MR N

Twelve years prior, Mr N acquired viral myocarditis resulting in heart failure. He underwent a prolonged hospitalization for over a year before he was implanted with a HeartMate II left ventricular assist device (VAD) (Thoratec Corp) prior to bridging to successful heart transplantation. Almost a decade later, he began to develop posttransplant vasculopathy and was relisted for a second heart transplant. Subsequently, he began to suffer from worsening renal and cardiac dysfunction, and he underwent SynCardia (SynCardia Systems Inc) TAH placement as a bridge to transplant.

His postoperative course was complicated by renal failure requiring dialysis and hemorrhagic pancreatitis requiring no oral intake and total parenteral nutrition dependency. Liver dysfunction led to jaundice and GI bleeding, requiring multiple blood transfusions. He also received a tracheostomy for postoperative respiratory failure. Due to comorbidities and high antibody titers, he was removed from the transplant list pending further recovery. Five months postimplantation, Mr N requested discontinuation of his TAH and was aware that doing so would result in his immediate death.

ETHICAL PERMISSIBILITY OF DEACTIVATING A TAH

VAD coordinator: "Do we just turn the switch? And the flip of a switch is equivalent to death? [The TAH is different than VADs] where they still have the heart, so it may function for multiple days or weeks or months [after stopping it]."

Palliative care specialist: "The [cardiologists and cardiothoracic surgeons] were very hung up on this 'we're killing him, we're killing him' thing. They will

[withdraw] ventilators all day long, but the heart was different for them."

Cardiologist: "I see the ventilator as different. There's a hope of weaning it, and you can make an effort to do that. Mechanical circulatory support is not a tube that you can [wean or] take out. It's in your body. So you turn it off."

When assessing deactivation of MCS devices in general, with a few notable exceptions,^{9,10} most authors argue that it is permissible to deactivate a MCS device in many circumstances.¹²⁻²³ The grounds for permissibility are based primarily on the ethical precept allowing informed refusal of life-sustaining therapies and the fact that, upon deactivation, the patient will die of underlying heart disease.¹²⁻¹⁶ This is considered similar to a patient who dies of underlying lung dysfunction upon extubation.

The TAH can be seen as unusually complex for reasons highlighted by the cardiologist and VAD coordinator, and the ethics of deactivating it could be viewed differently. First, the heart is removed with the TAH. The TAH is not sustaining the heart (as would be the case for a VAD); rather, it is functioning as the heart. One could argue that the patient with a TAH cannot have a natural death from failure of endogenous organs because that option was eliminated when the failing heart was removed. Second, death is more immediate following a TAH deactivation. Health-care providers may view themselves as the proximate cause of the patient's death more so than with other types of life-sustaining treatment. This illustrates a possible dissonance between what is academically considered ethically permissible in MCS deactivation and the psychologic burdens to health-care professionals in TAH deactivation cases.

Looking specifically within the scarce ethics literature specific to TAHs,^{13,18-24} most authors argue that deactivating a TAH is acceptable, although they differ in their analyses.^{19,23} The argument usually proceeds as follows: The immediacy of the death, while psychologically relevant, is not specifically morally problematic.^{12,13,18,20} While the heart is almost entirely removed with the TAH, its absence is not per se an ethical contraindication. The absence of the heart means the disease process of the heart has become all consuming.¹⁹ When the device is deactivated, the patient dies naturally from an all-consuming cardiac dysfunction. Other ethicists add that the TAH is not a true replacement for the heart because it is not physiologically integrated into the body and cannot function independent of a battery source or expert for control.^{12,13} It is, therefore, artificial in the same way that other life-sustaining interventions are artificial. We feel that the balance of the literature and our own assessment favor the opinion that deactivation of a TAH is ethically permissible.

Download English Version:

<https://daneshyari.com/en/article/2900034>

Download Persian Version:

<https://daneshyari.com/article/2900034>

[Daneshyari.com](https://daneshyari.com)