INSTITUTE TO ENHANCE PALLIATIVE CARE

PALLIATIVE CARE CASE OF THE MONTH

The Decision to Discontinue a Left Ventricular Assist Device

Yael Schenker, MD, MAS

Volume 12, No. 13 **May 2012**

Case: A 53-year old man receives a left ventricular assist device (LVAD) for chronic end-stage heart failure in 2010. His LVAD is initially placed as a bridge to transplant. However his post-operative course is complicated by persistent chronic infection, multiple embolic strokes and prolonged hospitalization. He is taken off the transplant list. In 2012 he is readmitted to the hospital from a long-term acute care facility for aortic valvuloplasty and LVAD weaning studies. This hospitalization is complicated by a hematoma causing nerve compression in his right leg and he is no longer able to walk. He tells the cardiothoracic surgery team that he wants his LVAD to be turned off and the team calls a palliative care consult.

Discussion: The left ventricular assist device (LVAD) was initially designed as a bridge to heart transplant. Open-heart surgery is required to implant an LVAD, which is attached to the left ventricle and the aorta in parallel with the patient's native cardiovascular system. A small pump is placed in the patient's abdominal cavity and connected to external battery-controlled system that can be worn over or under clothing. (1)

In 2003, the LVAD was approved as destination therapy (LVAD-DT) for patients with chronic end-stage heart failure who are not candidates for a heart transplant. This decision arose from a prospective randomized controlled trial conducted between 1998 and 2001 comparing LVAD-DT to optimal medical management (OMM) for chronic end-stage heart failure, in which patients receiving LVAD-DT showed improved survival over patient receiving OMM at 1-year (52% vs. 25%, p = 0.002) and 2-years (23% vs. 8%, p = 0.09). (2) Improved survival rates with LVADs are coupled with frequent and disabling complications including serious infections and strokes. (1)

Increasing numbers of patients living longer with LVADs has led to growing recognition of an important role for palliative care that may begin before implantation of an LVAD and continue through the end of life. (3) A palliative care clinician may be asked to assess whether LVAD implantation is consistent with a patient's goals and/or to assist with a transition to comfort-oriented treatment if the decision is made not to implant a device. Palliative care clinicians may help patients and families to complete advance directives that name a surrogate decision maker and describe the circumstances under which withdrawal of the LVAD device would be desired. Palliative care clinicians may also help to assess physical, psychological and spiritual needs that arise with LVAD use and refer patients and families to appropriate resources. Transitions in care, such as the determination that a patient with an LVAD is no longer a candidate for heart transplant, are important opportunities for palliative care clinicians to acknowledge emotions and provide support. A recent article by Goldstein et al provides sample communication techniques for each of these time points. (3)

Most commonly, palliative care clinicians are called to assist with the decision about whether to discontinue a LVAD, as occurred in this case of the month. At this advanced disease stage, not all patients will be able to communicate or have capacity to make decisions. However, conversations should include patients if they are able to participate and want to be involved. A first step is to assess what the patient and/or family understand about heart failure and the LVAD. Opening with a simple question such as "tell me what you understand about your disease" or "tell me what the doctors have talked with you about so far" can offer significant insights.

Clinicians should follow up by asking what the patient and/or family want to know before offering additional information or clarifying misperceptions. The next step is to talk about overall goals of care. "Help me to understand what is important to you" is a good question to initiate this discussion. In this case, the patient described an acceptable quality of life as being able to walk and live independently. Once the patient's goals have been articulated, the physician can help to develop a treatment plan that matches the patient's values. (3) After multiple discussions, it became clear that the burdens of the LVAD now outweighed its benefits for this patient.

Ethical guidelines and legal precedents support a patient's right to request the withdrawal of any medical intervention, regardless of whether the patient is terminally ill and regardless of whether the intervention prolongs life. (4) If a patient lacks capacity, these rights extend to the appropriate surrogate decision maker. No ethical or legal distinction is made between different types of life-prolonging interventions (i.e., LVADs vs. feeding tubes vs. hemodialysis). Some clinicians have moral objections to turning off an LVAD. In such cases, the clinician should inform the patient of these objections without imposing his or her personal beliefs and help to find a colleague who can fulfill this role.

Turning off an LVAD requires a coordinated effort between physicians and nurses. The palliative care team can be helpful in answering questions and providing support for clinical staff as well as the patient and family. Most often when a LVAD is turned off the patient dies within minutes. However, if there is intrinsic heart function the patient may live for several days. Patients and families should be prepared for these outcomes. Medications such as opioids and benzodiazepines are used to ensure that the patient is comfortable. Premedication is important because most patients will have a significant decrease in cardiac output after the device is turned off.

Resolution of the case: The LVAD was turned off at the patient's bedside. Morphine was given by both bolus and infusion for 48 hours after the LVAD was turned off. He died comfortably.

References:

1. Rizzieri AG, Verheijde JL, Rady MY, McGregor JL**.** Ethical challenges with the left ventricular assist device as a destination therapy. Philos Ethics Humanit Med. 2008;3:20.
2. Rose EA, Gelijns AC, Moskowitz AJ, Heitjan DF, Stevenson LW, Dembitsky W, et al. Long-term use of a left ventricular assist device for end-stage heart failure. N Engl J Med. 2001;345(20):1435-43.
3. Goldstein NE, May CW, Meier DE. Comprehensive care for mechanical circulatory support: a new frontier for synergy with palliative care. Circ Heart Fail. 2011;4(4):519-27.
4. Lampert R, Hayes DL, Annas GJ, Farley MA, Goldstein NE, Hamilton RM, et al. HRS Expert Consensus Statement on the Management of Cardiovascular Implantable Electronic Devices (CIEDs) in patients nearing end of life or requesting withdrawal of therapy. Heart Rhythm. 2010;7(7):1008-26.