The Oncologist®

Medical Ethics

Extracorporeal Membrane Oxygenation as a Bridge to Chemotherapy in an Orthodox Jewish Patient

Ellen C. Meltzer,[a] Natalia S. Ivascu,[a,b] Cathleen A. Acres,[a] Meredith Stark,[a] Richard R. Furman,[c] Joseph J. Fins[a]

[a]Division of Medical Ethics, [b]Department of Anesthesia, and [c]Division of Hematology and Medical Oncology, Center for Lymphoma and Myeloma, Weill Cornell Medical College and New York Presbyterian Hospital, New York, New York, USA

Disclosures of potential conflicts of interest may be found at the end of this article.

Key Words. Venoarterial extracorporeal membrane oxygenation • Bioethics • Surrogate decision making • Communication • Lymphoma • Chemotherapy • Religious objection • Orthodox Judaism • Withdrawal of life-sustaining therapy • Cultural liaison • Preventive ethics

Abstract

Objective. Venoarterial extracorporeal membrane oxygenation (VA-ECMO) for cardiopulmonary support offers survival possibilities to patients who otherwise would succumb to cardiac failure. Often referred to as "a bridge to recovery," involving a ventricular assist device or cardiac transplantation, this technology only affords temporary cardiopulmonary support. Physicians may have concerns about initiating VA-ECMO in patients who, in the absence of recovery or transfer to longer-term therapies, might assert religious or cultural objections to the terminal discontinuation of life-sustaining therapy (LST). We present a novel case of VA-ECMO use in an Orthodox Jewish woman with potentially curable lymphoma encasing her heart to demonstrate the value of anticipating and preemptively resolving foreseeable disputes.

Patient. A 40-year-old Hasidic Orthodox Jewish woman with lymphoma encasing her right and left ventricles decompensated from heart failure before chemotherapy induction. The medical team, at an academic medical center in New York City, proposed VA-ECMO as a means for providing cardiopulmonary support to enable receipt of chemotherapy. Owing to the patient's religious tradition, which customarily prohibits terminal discontinuation of LST, clinical staff asked for an ethics consultation to plan for initiation and discontinuation of VA-ECMO.

Interventions. Meetings were held with the treating clinicians, clinical ethics consultants, family, religious leaders, and cultural liaisons. Through a deliberative process, VA-ECMO was reconceptualized as a bridge to treatment and not as an LST, a designation assigned to the chemotherapy on this occasion, given the mortal threat posed by the encasing tumor.

Conclusion. Traditional religious objections to the terminal discontinuation of LST need not preclude initiation of VA-ECMO. The potential for disputes should be anticipated and steps taken to preemptively address such conflicts. The reconceptualization of VA-ECMO as a bridge to treatment, rather than as an LST, can allow patients with objections to the terminal discontinuation of LST to receive interventions, such as chemotherapy, that might otherwise be precluded by critical physiology. ***The Oncologist*** 2014;19:985–989

Implications for Practice: Extracorporeal membrane oxygenation may be safely initiated in certain medically and ethically complex cases, including those of patients whose surrogates may have deep-seated objections to the discontinuation of life-sustaining therapy. The potential for disputes surrounding discontinuation should be carefully anticipated, and measures, such as the use of preventive ethics, should be taken to preemptively mitigate this risk. Careful education of families and designated religious and community advisors will enable all involved to understand the benefits, and the risks and limitations, of this technology.

Introduction

Venoarterial extracorporeal membrane oxygenation (VA-ECMO) for cardiopulmonary support offers survival possibilities for patients who otherwise would succumb to cardiac failure. It is a temporary treatment often referred to as a "bridge" or a "bridge to recovery," involving a ventricular assist device (VAD) or cardiac transplantation; however, physicians may have concerns about initiating VA-ECMO in patients who, in the absence of recovery or transfer to longer-term therapies, might assert religious or cultural objections to the terminal discontinuation of life-sustaining therapy (LST). We present a case that demonstrates the value of anticipating and preemptively resolving these foreseeable disputes to safely initiate VA-ECMO in patients who may have objections to the discontinuation of life-sustaining therapy. Importantly, we

Correspondence: Ellen C. Meltzer, M.D., New York Presbyterian Weill Cornell Medical Center, Division of Medical Ethics, 435 East 70th Street, Suite 4J, New York, New York, 10021, USA. Telephone: 212-746-4246; E-Mail: elc9076@med.cornell.edu Received January 23, 2014; accepted for publication July 16, 2014; first published online in ***The Oncologist*** *Express* on August 5, 2014. ©AlphaMed Press 1083-7159/2014/$20.00/0 http://dx.doi.org/10.1634/theoncologist.2014-0025

CME

believe that VA-ECMO should not be withheld from patients whose beliefs may include religious objections to the withdrawal of LST, because these disputes can be reconceptualized and mediated.

Case Report

A 40-year-old Hasidic Orthodox Jewish female patient, mother of four young children, with newly diagnosed large B-cell lymphoma encasing both her right and left ventricles developed acute heart failure prior to chemotherapy induction. An urgent echocardiogram revealed a severely hypokinetic heart and poor cardiac output. Mechanical ventilation, inotropes, and an intra-aortic balloon pump yielded only minimal improvement in hemodynamics. Improvement of cardiac output hinged solely on reducing the tumor burden, yet administration of the requisite chemotherapy was incompatible with her decompensated state. The treatment itself was potentially associated with cardiac toxicity. Furthermore, even if chemotherapy were administered, tumor reduction would take time, and in her present state, the patient was unlikely to survive. The cardiology team proposed VA-ECMO as a means of providing cardiopulmonary support while allowing the patient to receive the necessary chemotherapeutic treatment.

This recommendation proved problematic, given that there is little literature to support the use of VA-ECMO as a supportive measure in cancer care. The risks associated with VA-ECMO—bleeding, infection, and stroke—would be heightened in a patient receiving chemotherapy [1]. Accordingly, the patient's oncologist anticipated that discontinuation of VA-ECMO would need to occur approximately 3–4 days after chemotherapy administration because, at that time, the expected neutropenia and thrombocytopenia would pose significant and incremental iatrogenic risks of bleeding and infection if the VA-ECMO remained. Moreover, if her tumor was unresponsive and she remained in heart failure after attempted therapy, she would be ineligible for a longer term VAD or cardiac transplant because of active malignancy. In this case, terminal discontinuation of the VA-EMCO might be the only treatment option. Unlike mechanical ventilation, with which patients who fail to wean might receive a tracheostomy for long-term ventilatory support, there is presently no option for providing VA-ECMO long term (i.e., more than a few days or weeks). In fact, current guidelines put forth by the Extracorporeal Life Support Organization state that ECMO "should be discontinued promptly if there is no hope for healthy survival (severe brain damage, no hope of heart or lung recovery, and no hope of organ replacement by VAD or transplant)" [2].

The inevitable need to remove the VA-ECMO raised the possibility of a religious objection, given the patient's and family's deeply held religious beliefs. It was anticipated that the family would likely oppose the discontinuation of the VA-ECMO if the tumor did not regress. Complicating the picture was the inability to know whether 3–4 days of cardiogenic support would be sufficient time for recovery of cardiac function, even if the lymphoma were adequately treated.

Under these constraints, the clinical team requested a clinical ethics consultation to help formulate a plan. Following internal deliberations with key decision makers for the incapacitated patient, including religious and community leaders, VA-ECMO was reconceptualized by all involved as a bridge to therapy, not itself a LST; VA-ECMO would be a means of maintaining the patient so she could receive chemotherapy, which was considered to be the life-saving intervention. Following this logic, should the patient fail to recover after the chemotherapy, it would be acceptable to her surrogate and the Hasidic community supporting her to discontinue VA-ECMO because it alone could not save the patient's life. That possibility belonged to the chemotherapy, which had not been given because of the hemodynamic instability evoked by the encasing tumor. With the foreseeable religious objection preemptively mediated, VA-ECMO was initiated and chemotherapy to reduce the tumor burden was administered.

Discussion

Numerous medical and ethical challenges may arise when using VA-ECMO in a patient with known malignancy and an objection to the discontinuation of LST, as our case attests and serves to highlight. In consultation with the medical ethics team, concerns emanating from the restricted options for longer-term cardiac support measures and the novel use of the VA-ECMO were rather quickly surmounted. In this case, the utility of VA-ECMO was expanded to serve as a supportive measure in a patient with advanced malignancy in need of hemodynamic support, a broadening of the usual indications for VA-ECMO. This was justified in part by an appeal to proportionality. A benefits-to-burdens analysis favored a trial of VA-ECMO and chemotherapeutic treatment for a patient who would otherwise die, particularly because lymphoma has >50% estimated 5-year survival [3–5]. Given the severity of this patient's cancer and the tumor encasing her heart, the estimated survival was likely lower. Still, there was a reasonable expectation that she might improve with the proposed VA-ECMO and chemotherapy. Certainly, without treatment, she would die.

These data presupposed that VA-ECMO would be discontinued before the patient became neutropenic and thrombocytopenic, after which the risks of complications from VA-ECMO would rise significantly. To achieve maximum benefit and to minimize harms, VA-ECMO would need both a timely start and a timely discontinuation, which could have prompted a religious objection on the part of the family. The paradox existed that if there were no guarantee that the patient could survive off VA-ECMO, then Orthodox Jewish law could prohibit the removal of the device, although to continue it could expose her to other theoretical risks.

Orthodox Jewish law, called "halacha," prioritizes the sanctity of life and the preservation of life over all else [6]. Although it is critical to acknowledge that important differences exist among individual adherents, religious leaders, scholars, and sects, taken most generally, Orthodox Jewish law views the withdrawal of life-sustaining therapy as a usurping of God's will and prerogative of deciding who lives and who dies. Consequently, it prohibits withdrawal or withholding of LST except in narrow circumstances, such as when the patient is deemed to be a "goses" [7, 8], a moribund individual, someone who is actively dying [9]. Although therapeutic efforts should be made to reverse the state of a goses, should this not be feasible, interventions might be restricted so as not to prolong

the dying process and again interfere with God's will [10]. More specifically, in the context of a goses, therapies may be withheld that are not effective or that lack "life-preserving qualities" [11]. Adding to the complexity of these determinations, advances in medicine have changed the landscape of what one might consider to be "imminently dying" or a goses, depending at times on the resources and technologies available at a given medical center [12].

In addition to general prohibitions on discontinuation of life-saving technologies, the locus of decision making in the Hasidic Orthodox community is likewise important to assess. Although medical decision making in U.S. health care settings customarily heralds the autonomy of patients (and, in the absence of capacity, surrogates), among Hasidic Jews, complex decision making often transpires in consultation with religious and community leaders [6]. In our collective experience, it is not one person, patient, or surrogate, who is charged with decision making in these critical circumstances. Rather, families will formulate these decisions in consultation with rabbis who, after hearing the facts of the case, will render a decision regarding pursuing or withholding treatment in accordance with the rabbinical interpretation of halacha [13]. Cultural practices, such as this community aspect of deliberation, are important to highlight, particularly because some health care providers may not be accustomed to this collective approach to decision making. Sensitivity and understanding in these situations remain paramount, as is respectful deference to rabbinic authority when engaged in dialogue and mediation.

For our patient, in light of the strong potential for a religious and culturally based opposition to the discontinuation of VA-ECMO, the medical team remained apprehensive about embarking on a treatment plan with VA-ECMO. Team members expressed concern that, should there be uncertainty regarding the patient's ability to survive off of VA-ECMO, religious leaders might intervene and object to the discontinuation of the device. Given the inevitability of this debate, the medical team even questioned whether an objection to the withdrawal VA-ECMO might even argue against its initiation.

Illustrative of the extent to which such disputes are eschewed, we have heard anecdotally that some institutions include authorization for VA-ECMO discontinuation as part of the initial consent for device placement in an effort to definitively avoid these disputes. We do not agree with this practice. For one, it could be perceived as coercive if patients or surrogates need to agree to possible terminal discontinuation of VA-ECMO to receive it. No other life-sustaining technology comes with such a stipulation [14]. Rather, we suggest that separate consent be obtained for terminal VA-ECMO discontinuation and encourage clinicians to directly address concerns of anticipated, or actual, disputes about removal of devices.

With a potential dispute looming, and with an understanding that religious advisors would likely be consulted in any subsequent decisions to withdraw VA-ECMO, the clinical ethics consultants recommended, with the permission of the patient's husband, that the family's rabbis and cultural liaisons be included from the beginning in the medical team's discussions with the family. A series of meetings were held. Without VA-ECMO and chemotherapy, the physicians explained, the patient would quickly succumb to her illness; this allowed the rabbinical leaders to assess the patient as a goses, imminently dying. VA-ECMO was indeed risky and without precedence in this context, yet this approach, combined with chemotherapy, offered the potential to reverse a goses and thus was given full consideration by the religious leaders. Furthermore, in accordance with halacha and the sanctity of life, a decision for a patient to choose a treatment that is initially risky but that may confer long-term, life-saving benefit is considered to be an expression of individual autonomy amid a cultural framework in which complex medical decision making often transpires in consultation with religious and community leaders [15].

With the advantages of initiating VA-ECMO therapy agreed, the discussion turned to the prospect of discontinuation. This topic, understandably, posed a greater challenge for all involved. Although the medical and medical ethics teams had prepared for concerns arising from the discontinuation of VA-ECMO to become quickly salient, when it came time to speak with the surrogate and religious representatives about the potential for terminal discontinuation, a curious revelation occurred. The clinical team had feared that the religious leaders would invoke their beliefs surrounding the discontinuation of LST; however, the rabbis came to appreciate the soundness of the view offered by the ethics consultants that VA-ECMO in this context simply was a "bridge to chemotherapy." They explained that they understood that this device would not be able to save the patient's life but rather would allow her the opportunity to receive chemotherapy, the intervention that might carry the potential to be life-saving. If the tumor failed to regress in response to the potentially life-saving chemotherapy and the patient remained in cardiogenic shock with no chance for meaningful recovery and no hope for VAD or cardiac transplantation, it might be acceptable to discontinue VA-ECMO because VA-ECMO itself could not save her life. We hoped that this understanding would help to prevent a subsequent futility dispute should the patient fail to recover.

For some, this line of reasoning may seem merely semantic play; however, it wisely captured the role and the benefit of VA-ECMO, a reconceptualization that had eluded many clinicians in our early internal deliberations. Moreover, for the members of the Orthodox community involved in decision making for this patient, a prospective understanding of the purpose and limitations of VA-ECMO, notably, that it could not treat the underlying malignancy responsible for the heart failure and, furthermore, at some point would become increasingly injurious, helped establish realistic expectations and provide a critical rationale for timely discontinuation. All involved agreed to the treatment plan.

Case Follow-Up

The patient was initiated on VA-ECMO and received chemotherapy and, as planned, her husband and his supporters were approached, on day 3, for consent to withdraw VA-ECMO. Unexpectedly, given the earlier deliberations (although understandably, given the potential for morbid ramifications), they refused to provide consent for withdrawal. The surrogates and religious leaders expressed concern that the patient's heart had not sufficiently improved and that she would die when the device was discontinued.

CME

The team quickly convened a meeting and reviewed and reiterated the plan of care. The treating physicians invoked the framing of the bridge to chemotherapy and restated the escalating risks of nonwithdrawal. The team conveyed that there was a strong rationale for the prompt discontinuation of VA-ECMO before grave complications developed. Furthermore, it was again stressed that VA-ECMO could not treat the underlying malignancy. If there had been no improvement after the potentially life-saving chemotherapy, the patient truly was a goses because there were no additional treatments to offer.

At that point, we feared that our best-laid plans for anticipatory conflict resolution had failed, but the foundation of knowledge and trust established earlier by our many prior meetings quickly prevailed. The hours spent engaging in "preventive ethics," as originally advanced by Chevernak and McCullough as a useful strategy in the obstetric context, turned out to be time well spent [16]. It enabled us to rapidly reach a renewed consensus. Together with the family and its religious advisors, a plan was quickly put in place: an echocardiogram would ascertain the patient's expected outcome off VA-ECMO, to prepare her family, and then the device would be discontinued.

We can report that the tumor regressed, the patient's cardiac output improved, and VA-ECMO was successfully discontinued. The patient survived for close to a year, achieving radiographic complete remission prior to relapsing in the brain. She ultimately died of infectious complications resulting from subsequent treatment. The oncology team's intent was cure; nevertheless, VA-ECMO was successful in providing an opportunity for nearly a year of remission, critical time for the patient and her husband to prepare her four young children for this immeasurable loss.

An Alternative Ending

It is worth discussing how the case might have been approached differently, had the echocardiogram not demonstrated enough improvement, or even any improvement, in cardiac output. If the patient recovered some but perhaps not enough cardiac function after one round of chemotherapy, it would be reasonable to continue VA-ECMO for a brief period of time to see whether she might continue to improve. Of course, if she developed complications, goals of care would need to be readdressed. A surrogate might prefer to continue VA-ECMO at all costs, despite mounting complications, if stopping the device meant certain death; however, the real question is one of hypothetical benefit versus certain death, with a novel intervention in discreet circumstances. There is no guarantee of success; more realistically, there is a low likelihood of success independent of certain death. The methods are untested in these circumstances, and at some point complications (e.g., stroke, hemorrhage) would render recovery impossible.

What if the echocardiogram demonstrated no improvement after chemotherapy, and terminal discontinuation of VA-ECMO was the only option? It is difficult to say with certainty what might have occurred, but one can imagine the family objecting. Alternatively, all our preventive work explaining the purpose of the VA-ECMO and the chemotherapy might have succeeded in preparing the family for this unfortunate outcome. If she remained a goses despite the chemotherapy and no further treatment options remained, it may be permissible under halacha to restrict VA-ECMO and not prolong the dying process.

Conclusion

This case illustrates a path by which VA-ECMO may be safely initiated in certain medically and ethically complex cases, including those of patients whose surrogates may have deep-seated objections to the discontinuation of life-sustaining therapy. The potential for disputes surrounding discontinuation should be carefully anticipated, and measures should be taken to preemptively mitigate this risk. Importantly, we believe that VA-ECMO should not be withheld categorically from patients whose beliefs may include strong objections to the withdrawal of LST. Rather, efforts should be made with regard to the use of preventive ethics to minimize the possibility of a dispute by discussing the potential for terminal discontinuation of VA-ECMO early and often to prepare decision makers for this potential outcome. Careful education of families and designated religious and community advisors will enable all involved to understand the benefits, and the risks and limitations, of this technology.

In order to facilitate informed decision making with respect to this technology, further research is needed to better understand how to optimally educate patients and surrogates about VA-ECMO. As we move forward with the use of VA-ECMO in adults with cardiopulmonary failure in expanding contexts, we need educational initiatives to keep pace with technology. With the complexities of this bridge therapy and the likelihood of futility disputes, we need to better prepare and guide families through the challenges of these decisions. In summary, VA-ECMO should not be withheld from those it might benefit, even in novel contexts such as malignancy, and religious and cultural objections to the discontinuation of LST need not, and should not, preclude its use when it makes good clinical sense. Rather, VA-ECMO should be used thoughtfully, with full disclosure of the benefits and burdens that accompany this remarkable innovation.

Acknowledgments

We thank the New York Presbyterian Weill Cornell Ethics Committee, whose insights and deliberations helped to inform this text. All work was performed at Weill Cornell Medical College of Cornell University and New York Presbyterian Weill Cornell Medical Center. No financial support was utilized for this work.

Author Contributions

Conception/Design: Ellen C. Meltzer, Natalia S. Ivascu, Cathleen A. Acres, Meredith Stark, Richard R. Furman, Joseph J. Fins
Provision of study material or patients: Ellen C. Meltzer, Natalia S. Ivascu, Cathleen A. Acres, Richard R. Furman, Joseph J. Fins
Manuscript writing: Ellen C. Meltzer, Natalia S. Ivascu, Cathleen A. Acres, Meredith Stark, Richard R. Furman, Joseph J. Fins
Final approval of manuscript: Ellen C. Meltzer, Natalia S. Ivascu, Cathleen A. Acres, Meredith Stark, Richard R. Furman, Joseph J. Fins

Disclosures

The authors indicated no financial relationships.

CME

References

1. Sidebotham D, McGeorge A, McGuinness S et al. Extracorporeal membrane oxygenation for treating severe cardiac and respiratory failure in adults: Part 2-technical considerations. J Cardiothorac Vasc Anesth 2010;24:164–172.

2. Extracorporeal Life Support Organization. General guidelines for all ECLS cases [cited August 2012 version]. Available at http://excellentwww.elsonet.org/resources/guidelines. Accessed August, 2012.

3. A predictive model for aggressive non-Hodgkin's lymphoma. The International Non-Hodgkin's Lymphoma Prognostic Factors Project. N Engl J Med 1993;329:987–994.

4. Fins JJ, Bacchetta MD, Miller FG. Clinical pragmatism: A method of moral problem solving. Kennedy Inst Ethics J 1997;7:129–145.

5. Fins JJ. A Palliative Ethic of Care: Clinical Wisdom at Life's End. Sudbury, MA: Jones and Bartlett, 2006.

6. Dorff EN. A Jewish approach to end-stage medical care. Conserv Jud 1991;43:3–51.

7. Jericho BG, Morgenweck CJ. End of life issues: Withdrawal of life-sustaining therapy. ASA Newsl 2009;73:24–25.

8. Jericho BG. End-of-life issues: Withdrawal of life-sustaining therapy - religious perspectives. Presented at: American Society of Anesthesiologists annual meeting; October 15–19, 2011; Chicago, IL.

9. Baeke G, Wils JP, Broeckaert B. Orthodox Jewish perspectives on withholding and withdrawing life-sustaining treatment. Nurs Ethics 2011;18:835–846.

10. Brain death and organ donation: An interview with Rabbi J. David Bleich. Jewish Rev 1989;3. Available at http://thejewishreview.org. Accessed July, 2014.

11. Brenner DS. Embracing Life and Facing Death: A Jewish Guide to Palliative Care. New York, NY: CLAL, 2002.

12. Baeke G, Wils JP, Broeckaert B. 'There is a time to be born and a time to die' (Ecclesiastes 3:2a): Jewish perspectives on euthanasia. J Relig Health 2011;50:778–795.

13. Steinberg A. Encyclopedia of Jewish Medical Ethics: A Compilation of Jewish Medical Law on All Topics of Medical Interest. New York, NY: Feldheim Publishers, 2003.

14. Meltzer EC, Ivascu NS, Fins JJ. DNR and ECMO: A paradox worth exploring. J Clin Ethics 2014;25:13–19.

15. Schostak Z. Is there patient autonomy in Halacha? Assia Jew Med Ethics 1995;2:22–27.

16. McCullough LB, Chervenak FA. Ethics in Obstetrics and Gynecology. New York, NY: Oxford University Press, 1994.

For Further Reading:
Sabine Salloch, Peter Ritter, Sebastian Wäscher et al. Medical Expertise and Patient Involvement: A Multiperspective Qualitative Observation Study of the Patient's Role in Oncological Decision Making. ***The Oncologist*** 2014;19:654–660.

Implications for Practice:
This qualitative, observational study shows that the setting in which oncological decisions are made (tumor conference, ward round, or outpatient clinic) has significant influence on the decision-making process as well as on the outcomes. Furthermore, treatment preselection is observed, narrowing the scope of options that are finally discussed with the patient. Decision making in oncology should account not only for evidence-based standards but also for the patient's individual values and preferences; therefore, there is a need to further discuss how far the physician's expertise in oncology reaches and at what points the patient should be involved in decision making.