OPTN Ethics Committee
Normothermic Regional Perfusion (NRP) Workgroup
Meeting Summary
August 4, 2022
Conference Call

Keren Ladin, PhD, Chair

Introduction

The Normothermic Regional Perfusion (NRP) Workgroup met via Citrix GoToMeeting teleconference on 08/04/2022 to discuss the following agenda items:

1. University of Minnesota Discussions about NRP as Option for DCD Transplantation
2. Process Flow and Questions for Consideration

The following is a summary of the Workgroup's discussions.

1. University of Minnesota (UMN) Discussions about NRP as Option for DCD Transplantation

Cindy Martin, MD, Andrew Shaffer, MD, Jennifer Needle, MD, MPH, and Joel Wu, JD, MPH, MA, presented the University of Minnesota's process and experience reviewing and implementing NRP. Their presentation outlined the process they underwent to discuss, review, approve, and implement an NRP protocol.

UMN identified two critical ethical issues, which are the concept of irreversible cardiac function followed by mechanical reanimation and clamping vessels to precipitate brain death. UMN's Ethics Committee came to the conclusion that the cardiac function was irreversible because it can no longer serve the purpose for the patient. The group also concluded that clamping the neck vessels did not precipitate death because death already occurred.

<u>Summary of discussion:</u>

Members discussed the distinctions between consent and authorization in proceeding with NRP. While authorization may apply more generally to organ transplant through implications of U.S. gift law, consent still applies in certain situations including withdrawal of care and donation after circulatory death (DCD). The presenter noted that it was essential to receive appropriate consent for the withdrawal of care and to honor the preferences and values of the donor. The presenter emphasized the role of consent as a tool to ensure transparency through the donation process.

The Workgroup discussed how consent for withdrawal of care and consent for donation are separate conversations conducted by separate teams, to achieve equity and nonmaleficence to the donor. The presenters noted that they are in the process of determining how best to proceed with discussions of NRP on both the donor and recipient sides, while recognizing the challenging decision that donor families are faced with in the wake of grief.

A member noted the potential for inconsistencies in the consent process when OPOs are discussing NRP with donor families prior to procurement and after consented withdrawal of support. The presenter encouraged the development and adoption of nationwide best practices to ensure that an appropriate and consistent consent process for specific DCD NRP procedure occurs across OPOs. Other members

agreed that setting a national standard and approach to NRP would be beneficial in addressing the potential ethical concerns of clinicians and hospital staff when it comes to NRP procurements.

2. Process Flow and Questions for Consideration

The Workgroup reviewed how the procurement process differs between standard donation after cardiac death (DCD) and DCD using NRP. This highlighted potential gaps in procurement protocols. The Chair opened the discussion for members to share what questions they need answers to in order to move forward in discussions of NRP. The goal is to generate a list of questions, concerns, and challenges that the workgroup would like to address.

<u>Summary of discussion:</u>

A member shared a thought experiment introducing two time points that occur in the NRP process and asked the workgroup members to consider if the patient would be considered deceased at each time point. The purpose of the thought experiment was to provide additional context and consideration for how those not involved in the NRP protocol may view it at various points in the process. If testing for brain death were possible, it could in some ways alleviate concerns about the validity of the initial declaration of death; however, it changes the characterization of death from cardiac criteria to neurologic criteria and thus raises additional questions implied by switching from one valid method of determining death (via circulatory and respiratory functions) to another (by brain function). A member inquired if, from a medical perspective, it is troubling if the characterization of death has changed from the criteria that were initially met. For death to be irreversible, nothing that can occur after the declaration of death can change the patient being deceased.

A member argued that this scenario is not practical because it removes all context from the situation, and that clinicians are proceeding with the wishes of the donor family. Another member countered that context does not matter regarding whether a patient is deceased or not. In opposition to this claim, a member stated that context is integral to the practice of medicine and should not be ignored.

A member noted that proceeding with the interpretation that the patient no longer meets death criteria and is therefore not dead would negate the trust in the declaration of death that was initially made. The presenter added that acting in the interest of the donor families is not always sufficient because clinicians have medical and legal standards they are accountable for, which underscores the importance of thorough ethical discussions. The presenter posed the thought experiment to the group to unearth ways in which NRP will be scrutinized and to highlight questions the workgroup will need to answer to defend their conclusions.

The Chair posed considerations shared by members via email, specifically that the ligation of cerebral arteries is not intended to instill death by neurologic criteria but rather to add confidence. A member questioned what 'confidence' was being added and argued that the five-minute time-out period is not long enough for full neurologic death in the cerebral cortex to proceed. Members agreed that confidence was not the correct term, but instead, the clinicians were acting in a tandem with the patient's refusal of life-sustaining treatment. A member opined that ligating the vessel is the humane thing to do because there are not tests available to indicate the level of brain death that has occurred at that time.

A member added that in standard DCD procurement the vessels are transected, which has the potential to cause bleeding but does not change the status of death. Additionally, a member added that the aorta is clamped during traditional DCD procurement to prevent the solution from circulating elsewhere in the body. The member inquired why simply removing the heart is acceptable but ligating the vessels is not.

A member made an argument for a meaningful distinction for intent. When perfusing the patient postmortem, the intent is not to reanimate the patient but instead to improve the viability of the organs for donation, which is consistent with the patient's preferences and goals.

A member inquired if vertebral artery circulation is maintained, to which a member responded that all three cerebral arteries are ligated so vertebral artery circulation is not maintained. In regards to residual back flow to spinal arteries, the member added that if there is blood flow it is minimal and not enough to sustain meaningful brain activity. A member countered that any blood flow is meaningful even if its minimal so the consideration is binary to whether there is or is not blood flow. A member responded that it is impossible to know if there is blood flow or not, and to what extent, so the current understanding is based on what is medically and anatomically understood.

A member inquired about the use of anesthesia in NRP protocol. A member responded that the medical team provides comfort care measures to the patient to reduce the individual's chance of discomfort as death proceeds. However, anesthesia is not given to deceased patients and is not used in NRP protocols.

The Chair summarized the themes of the discussion thus far and asked for additional topics of concern that the workgroup needs to address in their deliberations. The Chair added moral distress by providers and concern for pediatrics, noting that both topics have been brought to her attention over the past few months. A member suggested including how much intent should matter and incorporating the distinction between killing and letting die into the list for the workgroup's consideration. A member suggested providing information pertaining to public attitudes toward NRP to aid in the workgroup's discussions. The member added that it would be helpful to understand if that community had any confusion or uncertainty about NRP to ensure that the workgroup fully addresses their concerns. This question is rooted in the concern that if the public is not supportive of NRP then it could negatively impact trust in the system. The Chair noted that little is known about public support in the US for NRP, but colleagues from Europe will be presenting in September about attitudes and concerns in their respective transplant systems.

Upcoming Meetings

- August 11, 2022
- August 28, 2022
- September 8, 2022

Attendance

- **Workgroup Members**
  - Amy Friedman
  - Andrew Flescher
  - Bob Troug
  - Erin Halpin
  - Glenn Cohen
  - Julie Spear
  - Keren Ladin
  - Lainie Friedman Ross
  - Matt Hartwig
  - Nader Moazami
  - Rosa Guajardo
  - Sanjay Kulkarni
  - Sena Wilson-Sheehan
- **HRSA Representatives**
  - Jim Bowman
  - Marilyn Levi
- **SRTR Staff**
  - Bryn Thompson
- **UNOS Staff**
  - Alex Carmack
  - Christine Chyu
  - Cole Fox
  - James Alcorn
  - Kaitlin Swanner
  - Keighly Bradbrook
  - Kristina Hogan
  - Laura Schmitt
  - Lindsay Larkin
  - Matt Belton
  - Morgan Jupe
  - Rebecca Brookman
  - Stryker-Ann Vosteen
  - Susan Tlusty
- **Other Attendees**
  - Andrew Shaffer
  - Cindy Martin
  - Jennifer Needle
  - Joel Wu