

Study finds heart transplantation using donation after cardiac death with NRP

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A new study, presented today at the AATS 101st Annual Meeting, found that heart transplantation using donation after cardiac death (DCD) with normothermic regional perfusion (NRP) is feasible in the United States. Broader application of DCD heart transplantation has the potential to increase cardiac allograft availability by 20-30 percent. Over a one-year period, from January 2020 to January 2021, eight heart transplants were performed using cardiopulmonary bypass (CPB) for immediate regional reperfusion and cardiac unloading to accomplish optimal myocardial salvage. All hearts were successfully resuscitated and weaned from CPB with no inotropic support and all were accepted for transplantation. Post-transplant cardiac function was excellent in all recipients.

Improving the number and quality of organs available for transplantation is a key objective that improves outcomes for patients. The DCD process has been used with success in the United Kingdom, Belgium and Australia. This study is the first to measure outcomes in the United States.

"Our study addresses an important concept—the relative shortage of donors and the need for organs," explained Dr. Nader Moazami, Surgical Director of Heart Transplantation and Mechanical Circulatory Support at NYU Langone Health. "The DCD process taps into potential donors that have been used in the past for abdominal transplants but not for cardiac patients. We are excited about expanding the potential donor pool in the United States."

Preliminary data shows that DCD heart transplant with CPB allows immediate reperfusion and complete unloading of the heart, correction of metabolic derangements and real-time in-situ assessment of the heart prior to acceptance. Post-transplant cardiac function has been excellent in all cases with excellent early survival. This approach is readily adoptable for more widespread use, and will increase donor availability in the United States. During the study, six livers and 14 kidneys were recovered from the same donors, which could indicate success in increasing organ availability for non-cardiac patients as well.

Because the DCD process allows surgeons to resuscitate and assess the organ better before transplantation, the strategy should improve outcomes for patients. "This is the first study of DCD-NRP transplantation in the United States, and we already have many patients at least six months out from the transplant experiencing positive results," explained Deane Smith, MD, Assistant Professor of Cardiothoracic Surgery and Surgical Director of the Adult ECMO Program at NYU Langone Health. "Using traditional methods, there is not an effective way to assess the heart on the pump, but using DCD-NRP, we can measure cardiac output and hemodynamics before a decision is made to accept the [heart](#), and hopefully we will improve the quality of the other organs.

More information: "The First Clinical Heart Transplantation in The United States from Donation After Cardiac Death (DCD) using Normothermic Regional Perfusion (NRP)," Presented by Deane E. Smith, III, MD, May 2, 2021 at the AATS 101st Annual Meeting.

Provided by American Association for Thoracic Surgery

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