According to Organ Procurement and Transplantation Network (OPTN) data, in 2017, the national lung utilization rate was 23.7%.

Lungs declined in the donor operating room often have no opportunity for reallocation due to time constraints on the recipient transplant centers and unacceptable cold ischemic times.

Ex Vivo Lung Perfusion (EVLP) may allow an Organ Procurement Organization (OPO) extended time to allocate lung(s) to a center beyond the time of the deceased donor cross clamp.

Access to EVLP allowed the opportunity for lungs declined in donor surgery to still be transplanted. This provided the OPO additional time to allocate, and the transplant center with additional time to prepare the recipient and evaluate the lungs.

In this case, from cross clamp time to beginning of the transplant was 15 hours 47 minutes.

The EVLP system used to assess the lungs for this report is currently undergoing a clinical investigation in the United States CLINICAL TRIAL PXUS 14-001. The system is for Investigational Use Only. Sponsored by Lung Bioengineering.

A lung transplant center went to the operating room at a donor site with the intention of recovering a bilateral lungs from a brain dead donor for standard of care direct to transplant.

While in the donor OR, it was discovered that the intended recipient could no longer undergo the scheduled double lung transplant.

The center did not have any alternate candidates to receive the lungs.

Since the lung transplant center was enrolled in an EVLP clinical trial (https://clinicaltrials.gov/ct2/show/NCT02234128), the transplant center made the decision to prescribe EVLP for the lungs in order to provide the OPO with additional time to allocate to the other EVLP clinical trial sites.

Donor aorta cross clamp was delayed by 71 minutes to allow for lung transportation arrangements and the OPO was able to place lungs with a subsequent EVLP clinical trial site while the lungs were en route to a centralized EVLP facility (LB1).

During EVLP, the accepting transplant center was able to evaluate the lung function and prepare the recipient for transplant.

The lungs met all clinical trial inclusion criteria for transplant and were sent to the accepting transplant center following EVLP (see Figure 1 for complete timeline).

FIGURE 1

CASE PROFILE

- A lung transplant center went to the operating room at a donor site with the intention of recovering a bilateral lungs from a brain dead donor for standard of care direct to transplant.
- While in the donor OR, it was discovered that the intended recipient could no longer undergo the scheduled double lung transplant.
- The center did not have any alternate candidates to receive the lungs.

BACKGROUND

• According to Organ Procurement and Transplantation Network (OPTN) data, in 2017, the national lung utilization rate was 23.7%.
• Lungs declined in the donor operating room often have no opportunity for reallocation due to time constraints on the recipient transplant centers and unacceptable cold ischemic times.
• Ex Vivo Lung Perfusion (EVLP) may allow an Organ Procurement Organization (OPO) extended time to allocate lung(s) to a center beyond the time of the deceased donor cross clamp.

DISCUSSION

• Since the lung transplant center was enrolled in an EVLP clinical trial (https://clinicaltrials.gov/ct2/show/NCT02234128), the transplant center made the decision to prescribe EVLP for the lungs in order to provide the OPO with additional time to allocate to the other EVLP clinical trial sites.
• Donor aorta cross clamp was delayed by 71 minutes to allow for lung transportation arrangements and the OPO was able to place lungs with a subsequent EVLP clinical trial site while the lungs were en route to a centralized EVLP facility (LB1).
• During EVLP, the accepting transplant center was able to evaluate the lung function and prepare the recipient for transplant.
• The lungs met all clinical trial inclusion criteria for transplant and were sent to the accepting transplant center following EVLP (see Figure 1 for complete timeline).

REFERENCES

- https://optn.transplant.hrsa.gov

ACKNOWLEDGMENT

Special thank you to the Lung Bioengineering staff involved in the case: James Zhan, Erin Larrabee, Randolph Shelton, Katie Lewis, Mitch Eyster and Bill Ormond

SUMMARY

• Access to EVLP allowed the opportunity for lungs declined in donor surgery to still be transplanted.
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