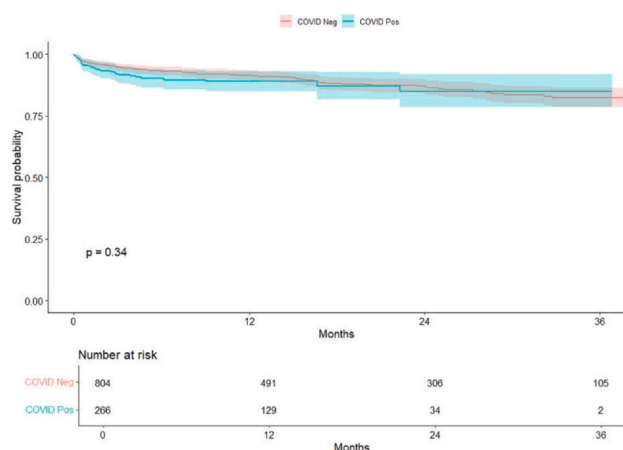


Methods: Using the UNOS database, we identified all adults (> 18 years old) undergoing HT between 1/2020 and 4/2024. They were stratified based on donor COVID-19 status: COVID-19+ vs. - defined as having a positive vs. negative nucleic acid test (NAT) or antigen test within 7 days of HT. Groups were 3:1 nearest propensity score matched. Baseline characteristics were compared between groups. Kaplan-Meier method was used to compare 30-day, 1-, 2-, and 3-year survival. Cox regression models were used to assess the impact of donor COVID-19+ status on overall survival.

Results: After propensity score matching, 804 patients underwent HT with COVID-19- donors and 268 with COVID-19+ donors. Recipient and donor profiles were similar between both cohorts. We found no significant difference in overall recipient survival between COVID-19+ and - donor cohorts ($p=0.34$). COVID-19+ donor heart recipients had 95.2, 89.1, 85.1, and 85.1% survival at 30-day, 1-, 2-, and 3-years, respectively. COVID-19- donor heart recipients had 96.6, 91.5, 87.1, and 82.4% survival at same time intervals. Rates of acute rejection ($p=0.4$), length of hospital stay ($p>0.9$), postop stroke ($p=0.5$), airway dehiscence ($p>0.9$), and dialysis ($p>0.9$) did not differ between groups. Our results suggest that donor COVID-19+ status was not significantly associated with risk of mortality (HR: 1.01, $p=0.6$).

Conclusion: COVID-19+ donor hearts demonstrate comparable long-term outcomes and safety profiles compared to COVID-19- donor hearts. Further studies are needed to analyze the impact of COVID-19 vaccination on donors and recipients to optimize survival benefits and increase the viable donor organ pool.



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Examining Clinical Outcomes and Circulatory Support Requirements in Recipients of DCD Heart Transplants

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Purpose: Cardiac donations after circulatory death (DCD) may be procured via normothermic regional perfusion (NRP) or direct procurement and perfusion with an ex-vivo perfusion system [Organ Care System™, (Andover, MA)] (OCS). This study compared clinical outcomes in recipients of hearts that were supported with the OCS versus NRP.

Methods: Institutional medical records were queried for patients who received a DCD transplant from April 2017 to May 2024. This totaled 37 patients; one patient who underwent kidney-heart transplantation was excluded.

Results: Of the 36 patients included, 12 patients received grafts that were supported with the OCS. The demographics of the donors were similar between the OCS and NRP groups, the average ages were 36 and 40 years, and average BMIs were 27.8 and 30.3, respectively. The median length of stay was 34 days (95% CI 27-63) for OCS patients and 30 (95% CI 19-43) for NRP. The median vasoactive-inotropic scores (VIS) in the first 24 hours post-operatively were 17.8 (95% CI 9.2-29.2) for OCS and 19.3 (95% CI 14.3-27.4) for NRP. There were no significant differences between mean length of stay or VIS, however the mean total preservation time was significantly longer for OCS ($P=0.0056$). The median total preservation time was 358 minutes (95% CI 268-381) for OCS and 210 (95% CI 158-248) for NRP. The median number of ventilation days was 3.5 (95% CI 2-7) for OCS and 2.0 (95% CI 2-4) for NRP. Post-Operative ECMO use occurred in 25% in the OCS group and 8.3% in the NRP group. Lastly, the 1-year survival in the OCS group was 100% and 96% in the NRP group.

Conclusion: At our institution, when hearts are supported with the OCS, the total preservation time is longer. Compared to grafts recovered with the NRP method, there were no differences in total case time, length of stay, ventilation days, or VIS. Although this project has a smaller sample size, it encourages broader efforts to investigate outcomes of hearts supported with the OCS.

