

Heart transplantations amidst the COVID-19 pandemic: “In the midst of chaos, there is also opportunity”

Andrea Amabile MD  | Arnar Geirsson MD 

Division of Cardiac Surgery, Department of Surgery, Yale School of Medicine, New Haven, Connecticut, USA

Correspondence

Arnar Geirsson, MD, Division of Cardiac Surgery, Yale School of Medicine, BB204, 330 Cedar St., P.O. Box 208039, New Haven, CT 06510, USA.
Email: arnar.geirsson@yale.edu

In “The Art of War” by Sun Tzu, the author opined that “in the midst of chaos, there is also opportunity.”¹ Since the identification of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in December 2019, the COVID-19 pandemic has dramatically strained healthcare systems in many ways. Concerns regarding resource allocation, ventilator shortage, asymptomatic transmission, and infected healthcare workers have significantly impacted the way care has been provided for many months. Surgical services had to be reorganized and, in this frame, there was a 53% nationwide decrease in adult cardiac surgery volume in April 2020 (at the first COVID-19 peak), with a 65% decrease in elective procedures and a 40% decrease in nonelective cases compared to the previous year.²

In this issue of the Journal, Balsara et al.³ investigated changes in the volume and outcomes in a single-institution, large-volume transplant center. They showed an increase in the total number of heart transplants performed (43 in March–June 2020 vs. 31 in March–June 2019), with no differences in donor and recipient demographics and no differences in 30-day survival rates between the two timespans (95.3% in 2020 vs. 96.8% in 2019, $p = ns$).

Notably, no cardiac transplant recipients (or healthcare providers taking care of these patients) developed COVID-19 during the study period, and this allowed for unchanged perioperative and immunosuppressant management protocols with minimal additional safety concerns.

These findings differ from what has been reported by other groups. Four smaller series reporting on patients undergoing heart transplantation (two from the United States,^{4,5} one from Germany,⁶ and one from Italy⁷) reported overall rates of severe COVID-19 disease amongst transplanted patients ranging from 7% to 46%, with in-hospital mortality rates ranging from 25% to 36%. On a nationwide level, a survey distributed to organ procurement organizations comparing 90-day activity in a similar timespan (March–May 2020 vs. March–May 2019) showed an 11% decrease in organ authorization and an 18% decrease in organ transplantation.⁸

In spite of the paucity of data available at the current stage, the experience by Balsara et al. is notable for their excellent short-term outcomes and for providing the readership with opportunity for some considerations. First, although the overall number of heart procurements and transplants was significantly impacted by COVID-19, centers prioritizing the maintenance of transplant programs may have had access to organs that would have been allocated to other institutions under normal circumstances (therefore, the increase in the number of transplants performed at certain institutions such as Vanderbilt University Medical Center or, for instance, Yale New Haven Hospital). Second, the implementation of rigorous testing strategies and monitoring protocols (for both patients and providers, before and after heart transplantation) has been mandatory to thoroughly safeguard patients. In addition, a very high safety threshold for proceeding with procurements (i.e., COVID-19 clearance of all team members involved in the care of the donor at the outside institution) was of additional value in our experience. Third, clear and open communication with patients listed for transplant about the uncertainty related to the duration of the COVID-19 pandemic and its unknown impact on organ availability may have played a role in minimizing the number of patients declining to undergo transplant.

In conclusion, Balsara et al. must be complimented for casting light on how heart transplant dynamics and outcomes were impacted at their institution by the COVID-19 pandemic. Additional investigation may be needed to clarify how the COVID-19 pandemic has impacted waitlist mortality and patient-specific organ availability.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

ORCID

Andrea Amabile  <https://orcid.org/0000-0003-4689-3871>

Arnar Geirsson  <https://orcid.org/0000-0002-8943-9962>

REFERENCES

1. Tzu S. *The Art of War*. Chichester, UK: Capstone Publishing; 2010.
2. Nguyen TC. The effect of COVID-19 on adult cardiac surgery in the United States: Analysis of the Society of Thoracic Surgeons adult cardiac surgery database. <https://www.sts.org/media/news-releases/covid-effect-leads-fewer-heart-surgeries-more-patient-deaths#:~:text=According%20to%20the%20study%20results,resulting%20in%20a%2040%25%20decrease> Accessed May 31, 2021.
3. Balsara KR, Rahaman Z, Sandhaus E, Hoffman J, Zalawadiya S, McMaster WJ. Prioritizing heart transplantation during the COVID-19 pandemic. *J Card Surg*. 2021.
4. Ketcham SW, Adie SK, Malliett A, et al. Coronavirus disease-2019 in heart transplant recipients in Southeastern Michigan: a case series. *J Card Fail*. 2020;26(6):457-461.
5. Latif F, Farr MA, Clerkin KJ, et al. Characteristics and outcomes of recipients of heart transplant with coronavirus disease 2019. *JAMA Cardiol*. 2020;5(10):1165-1169.
6. Rivinius R, Kaya Z, Schramm R, et al. COVID-19 among heart transplant recipients in Germany: a multicenter survey. *Clin Res Cardiol*. 2020;109(12):1531-1539.
7. Iacovoni A, Boffini M, Pidello S, et al. A case series of novel coronavirus infection in heart transplantation from 2 centers in the pandemic area in the North of Italy. *J Heart Lung Transplant*. 2020;39(10):1081-1088.
8. Ahmed O, Brockmeier D, Lee K, Chapman WC, Doyle MBM. Organ donation during the COVID-19 pandemic. *Am J Transplant*. 2020;20(11):3081-3088.

How to cite this article: Amabile A, Geirsson A. Heart transplantations amidst the COVID-19 pandemic: "In the midst of chaos, there is also opportunity." *J Card Surg*. 2021; 36:3222-3223. <https://doi.org/10.1111/jocs.15732>