Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Research Letters

Survival After Heart Transplantation From SARS-CoV-2–Positive Donors

Heart transplantation is the gold standard treatment for Stage D heart failure and is primarily limited by the donor pool. Transplantation rates and additions to the wait list have decreased during the pandemic, in part because of concerns surrounding use of allografts from SARS-CoV-2-positive donors.[1] The United Network for Organ Sharing (UNOS) has issued summary recommendations on transplantation from potential donors with a history of or active, but mild or asymptomatic, cases of SARS-CoV-2 infection stratified by time since disease onset.[2] The extent of cardiac injury after mild SARS-CoV-2 infection is an active area of investigation. Although clinical evidence of cardiac injury is rare in otherwise healthy, young infected persons,[3] endothelial dysfunction[4] and subcellular derangements[5] could theoretically have longer-term consequences for a mild or subclinical infection in the transplanted organ.

To understand the clinical outcomes of patients who received cardiac allografts from SARS-CoV-2-infected donors, we queried the UNOS thoracic organ registry for patients undergoing cardiac transplantation from March 1, 2020, to December 1, 2021. We identified recipients of organs from SARS-CoV-2-positive donors by nucleic acid amplification testing and compared them with recipients of SARS-CoV-2-negative donors. Recipients of organs from donors with indeterminant results were not included. Recipients with missing post-transplantation survival information were not included (399 from SARS-CoV-2-negative donors, 11 from SARS-CoV-2-positive donors). The primary outcome of interest was patient post-transplantation mortality. Student's *t*, Mann-Whitney *U*, and chi-square tests, as appropriate, and Kaplan-Meier comparisons were performed. This study was approved as exempt by the Yale School of Medicine Institutional Review Board.

During the study period, hearts from 37 SARS-CoV-2 test positive donors were accepted for transplantation (**Table 1**). Compared with declined donors, the accepted organs came from donors who were younger (median age: 28 vs 47 years; $P < 0.001$), less likely female (8.1% vs 39.1%; $P = 0.002$), and of lower body mass index (27.0 vs 31.6 kg/m^2; $P = 0.001$). Accepted hearts had higher ejection fraction (median: 64% vs 60%; $P = 0.04$), and were less likely to be donated after circulatory death (8.1% vs 56.4%; $P < 0.001$). Of these 37 donations, we identified 32 recipients of organs from SARS-CoV-2-positive donors and compared them with 5,445 recipients of allografts from SARS-CoV-2-negative donors over the same period. There were no differences in age, gender, body mass index, urgency status at transplantation, blood type distribution, pretransplantation support, or comorbidities. Thirty-day and 1-year survival was 100% for the recipients of organs from SARS-CoV-2-positive donors, and there were no apparent differences in short-term survival compared with recipients of organs from SARS-CoV-2-negative donors ($P = 0.342$ at 30 days; $P = 0.218$ at 1 year).

The main limitation of the UNOS data set for this analysis is the lack of COVID-19 symptomatology of the donors or its temporal relation to organ retrieval; however, it remains encouraging that short-term survival was similar for recipients of organs from SARS-CoV-2 test positive and negative donors. Further investigation will be needed, especially given the expectation of the scientific community that SARS-CoV-2 eradication is unlikely and for endemic infection in some regions to persist.

The question of whether to accept hearts from SARS-CoV-2-positive donors is an important ethical dilemma that needs to be addressed promptly. As patients languish on organ waitlists without viable alternatives and thousands of new SARS-CoV-2 diagnoses are made daily in the United States alone, transplant clinicians and centers have a duty to discuss the potential risks and benefits of transplantation clearly and openly from a SARS-CoV-2 test positive donor versus the risk of continued waiting. Although active infection in a recipient of a donated non-lung organ has not been described, the immunologic and functional sequelae of prior infection remain incompletely elucidated. However, this

TABLE 1 Accepted and Declined SARS-CoV-2 Positive Donor Characteristics and Recipient Characteristics of Hearts From SARS-CoV-2 Positive and Negative Donors

	SARS-CoV-2 NAAT Positive Donors			Recipient Characteristics		
	Heart Declined (n = 243)	Heart Accepted (n = 37)	*P* Value	SARS-CoV-2 NAAT Negative Donor (n = 5,445)	SARS-CoV-2 NAAT Positive Donor (n = 32)	*P* Value
Age, y	47 (35-55)	28 (22-36)	<0.001	56 (46-63)	58 (46-64)	0.578
Female	39.1	8.1	0.002	26.28	18.75	0.334
Body mass index, kg/m^2	31.6 (26.3-36.6)	27.0 (24.6-30.8)	0.001	27.6 (24.2-31.5)	28.3 (24.3-30.8)	0.881
Blood type			0.205			0.787
A	41.2	35.1		38.8	50.0	
AB	4.1	0.0		5.0	0.0	
B	11.1	5.4		15.4	12.5	
O	43.6	59.5		40.8	37.5	
Ethnicity			0.143			0.172
White	70.4	51.4		62.2	43.8	
Black	9.5	18.9		16.5	21.9	
Hispanic	16.5	27.0		17.9	31.3	
AAPI	1.2	0.0		1.7	0.0	
UNOS region			0.434			0.040
1	0.4	0.0		3.4	0.0	
2	8.7	2.3		9.2	3.1	
3	8.7	9.1		15.8	9.4	
4	13.2	15.9		10.4	18.8	
5	14.9	15.9		16.0	12.5	
6	4.5	2.3		4.0	0.0	
7	4.2	2.3		7.8	0.0	
8	21.2	18.2		7.7	15.6	
9	2.8	9.1		3.7	12.5	
10	12.9	9.1		10.0	12.5	
11	8.7	15.9		12.3	15.6	
Ejection fraction	60 (55-65)	64 (59-65)	0.040	–	–	–
Cause of death			<0.001			
Drowning	0.8	0.0				
Drug intoxication	5.8	24.3				
Asphyxiation	5.8	8.1				
Cardiovascular	11.9	8.1				
GSW	4.1	21.6				
Blunt injury	9.5	24.3				
ICH/stroke	21.0	2.7				
Death from natural causes	23.5	8.1				
None of the above	17.7	2.7				
Ischemic CM	–	–	–	27.82	37.5	0.224
Status at transplant						0.926
1				9.3	12.5	
2				48.0	46.9	
3				16.1	9.4	
4				20.7	25.0	
5				0.9	0.0	
6				5.0	6.3	

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analysis shows that acceptance of a carefully selected heart from a SARS-CoV-2 test positive donor may be safe in the short term.

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TABLE 1 Continued

	SARS-CoV-2 NAAT Positive Donors			Recipient Characteristics		
	Heart Declined (n = 243)	Heart Accepted (n = 37)	*P* Value	SARS-CoV-2 NAAT Negative Donor (n = 5,445)	SARS-CoV-2 NAAT Positive Donor (n = 32)	*P* Value
Support						
Ventilated				1.7	3.1	0.516
Inotropes				46.7	50.0	0.705
LVAD				24.4	28.1	0.624
RVAD				2.2	6.3	0.113
ECMO				6.4	9.4	0.489
IABP				29.3	37.5	0.307
AICD				68.2	75.0	0.409
Comorbidities						
eGFR				65.3 (49.5-84.5)	73.8 (49.0-86.7)	0.670
DM				29.5	37.5	0.320
CVD				7.5	9.4	0.687
PVR, dynes · sec/cm^5				171 (112-250)	159 (102-250)	0.792
Other characteristics						
DCD	56.4	8.1	<0.001	–	–	–
IVDU	4.9	18.9	0.002	–	–	–
Smoker	14.0	8.1	0.325	40.8	46.9	0.488
HTN	50.2	51.4	0.897	–	–	–
Malignancy	2.9	2.7	0.952	1.2	3.1	0.326
Any infection	70.8	78.4	0.339	–	–	–

Values are n (%) or mean ± SD, unless otherwise indicated.

AAPI = Asian American Pacific Islander; AICD = implantable cardioverter-defibrillator; CM = cardiomyopathy; CVD = cerebrovascular disease; DCD = donation after circulatory death; DM = diabetes mellitus; ECMO = extracorporeal membrane oxygenation; eGFR = estimated glomerular filtration rate; GSW = gunshot wound; HTN = hypertension; IABP = intra-aortic balloon pump; ICH = intracerebral hemorrhage; IVDU = intravenous drug usage; LVAD = left ventricular assist device; NAAT = nucleic acid amplification test; PVR = pulmonary vascular resistance; RVAD = right ventricular assist device; UNOS = United Network for Organ Sharing.

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Racial Differences in Natriuresis

A Post Hoc Analysis of the ROSE-AHF Trial

Black patients with heart failure (HF) have higher rates of HF hospitalization than other racial/ethnic groups. Impaired natriuresis predicts adverse outcomes in patients with acute heart failure (AHF),[1] and recent guidelines recommend titrating diuretic doses based on natriuretic response.[2] However, prior data have documented higher renal sodium reabsorption in subjects with African ancestry compared with other racial/ethnic groups.[3] Here, we perform a post