Appendix 1 Methods

Electrical recordings were analogue-to-digital converted (16 bits), sampled with a rate of 1 kHz, amplified (gain 1,000) and filtered (bandwidth 0.5–400 Hz). Mapping data were analyzed using custom-made software (1) by annotating the steepest negative slope (LV ≤–0.2 mV/ms and RV ≤–0.1 mV/ms) of unipolar potential deflections (amplitude ≥0.5 mV). All annotations were visually verified by two authors (J.A. and N.d.G.) and ectopic beats were excluded from analysis. Color-coded maps were created visualizing quantified features of unipolar extracellular potentials including unipolar extracellular potential voltages (peak-to-peak amplitudes) and slopes at each electrode. Low-voltage was defined as the proportion of unipolar potentials with an amplitude <2.0 or <1.0 mV for the LV or RV, respectively, in accordance with previous studies (2). Local activation time (LAT) maps were created to study abnormalities in myocardial conduction. Conduction block (CB) was determined as a difference in LAT of ≥12 ms between two adjacent electrodes and the prevalence of CB was calculated as percentage of all conduction times. Local effective conduction velocity (CV) was computed from LATs of neighboring electrodes (longitudinal, transversal, and diagonal) using discrete velocity vectors (3). Areas of simultaneous activation were excluded from analysis to avoid inclusion of far-field potentials. Median unipolar potential voltage, potential slope, and CV and the amount of low-voltage potentials and CB were calculated for the LV and RV of each donor heart.

References

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Table S1 Potential characteristics and conduction characteristics of two donor hearts during *ex situ* heart perfusion (A and B) that required extracorporeal membrane oxygenation support post-transplantation

ECMO	Unipolar potential characteristics			Conduction characteristics	
	Voltage (mV)	Low-voltage (%)	Slope (-V/s)	Conduction velocity (cm/s)	Conduction block (%)
A					
LV	16.6 (10.0–22.2)	0.10	0.9 (0.5–1.5)	87 (63–112)	8.5
RV	7.9 (5.4–9.9)	1.56	0.6 (0.4–0.9)	75 (47–103)	6.2
B					
LV	16.4 (12.4–23.8)	0.22	3.0 (1.3–6.0)	112 (79–141)	0
RV	12.0 (8.0–15.2)	0.36	1.2 (0.8–2.0)	88 (59–122)	1.5

Heart A showed electrical abnormalities (lower RV voltage with more low-voltage potentials; reduced potential slopes; and reduced conduction velocities with more conduction block) compared to the hearts that did not require ECMO support. Heart B did not show these electrical abnormalities.

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