

SUPPLEMENTARY DATA

Table 1 of the supplementary data

Baseline characteristics of the study population by indication for retransplant

	Acute rejection (n = 16)	Cardiac allograft vasculopathy (n = 73)	Primary graft failure (n = 41)	Unspecific graft failure (n = 43)	<i>P</i>
Recipient					
<i>Age at HT, y</i>	50.0 [45.0-57.0]	53.0 [44.5-58.0]	52.0 [42.0-59.0]	52.0 [40.0-60.0]	.99
<i>Sex, female</i>	2 (12.5)	11 (15.1)	12 (29.3)	11 (25.6)	.21
<i>Weight, kg</i>	71.4 [64.7-79.7]	72.1 [65.2-81.6]	64.1 [56.0-73.1]	70.0 [60.0-79.0]	.01
<i>Renal dysfunction</i>	7 (43.8)	39 (53.4)	13 (31.7)	22 (51.2)	.14
<i>Pulmonary vascular resistance, Wood units</i>	2.1 [1.3-3.5]	1.8 [1.1-2.4]	2.2 [1.4-3.4]	1.8 [1.2-2.6]	.08
<i>Infection prior to HT</i>	3 (18.8)	5 (6.8)	9 (22.0)	7 (16.3)	.12
<i>Diabetes prior to HT</i>	6 (37.5)	17 (23.3)	2 (4.9)	8 (18.6)	.02
<i>COPD pre-HT</i>	3 (18.8)	0 (0,0)	5 (12.2)	5 (11.6)	.01
<i>Hypertension</i>	7 (43.8)	37 (50.7)	15 (36.6)	14 (32.6)	.23

<i>Cytomegalovirus serology (+)</i>	14 (87.5)	66 (90.4)	31 (75.6)	39 (90.7)	.12
<i>Peripheral vascular disease</i>	2 (12.5)	7 (9.6)	3 (7.3)	2 (4.7)	.72
<i>Mechanical ventilation pre-HT</i>	3 (18.8)	5 (6.8)	38 (92.7)	6 (14.0)	< .001
<i>Circulatory support pre-HT</i>					< .001
None	11 (68.8)	61 (83.6)	5 (12.2)	38 (88.4)	
IABP	4 (25.0)	10 (13.7)	26 (63.4)	3 (7.0)	
ECMO	0 (0.0)	1 (1.4)	3 (7.3)	1 (2.3)	
VAD	1 (6.3)	1 (1.4)	7 (17.1)	1 (2.3)	
<i>Neoplasia pre-HT</i>	1 (6.3)	4 (5.5)	2 (4.9)	3 (7.0)	.98
Donor					
<i>Age, y</i>	30.3 [20.5-42.4]	34.0 [24.5-45.0]	33.1 [21.0-40.6]	35.0 [27.6-48.0]	.27
<i>Sex, female</i>	11 (68.8)	52 (71.2)	30 (72.3)	28 (65.1)	.86
<i>Weight, kg</i>	71.1 [64.5-79.3]	73.1 [65.0-80.0]	70.0 [61.6-77.4]	70.0 [64.4-82.1]	.67
<i>Cause of death</i>					.06
Traumatic	8 (50.0)	32 (43.8)	21 (51.2)	10 (23.3)	
Stroke	2 (12.5)	23 (31.5)	14 (31.4)	20 (46.5)	

Others	6 (37.5)	18 (24.7)	6 (14.6)	13 (30.2)	
<i>Recipient male/donor female</i>	4 (25.0)	16 (21.9)	5 (12.2)	8 (18.6)	.63
<i>Recipient/donor weight ratio</i>	1.0 [0.9-1.1]	1.0 [0.9-1.1]	0.9 [0.8-1.1]	1.0 [0.8-1.1]	.24
Surgical procedure					
<i>HT era</i>					< .001
1984-1999	11 (69.0)	18 (25.0)	24 (59.0)	12 (28.0)	
2000-2018	5 (31.0)	55 (75.0)	17 (41.0)	31 (72.0)	
Cold ischemia time, h					.78
<i>Bicaval surgical technique</i>	3 (18.8)	23 (31.5)	5 (12.2)	19 (44.2)	< .01
<i>Time to retransplant, y</i>	0.6 [0.3-1.2]	9.1 [5.7-13.1]	0.01 [0.0-0.02]	9.0 [1.7-12.8]	< .001
<i>Induction therapy</i>	8 (50.0)	47 (64.4)	22 (53.7)	34 (79.1)	.06

COPD, chronic obstructive pulmonary disease; ECMO, extracorporeal membrane oxygenator; HT, heart transplant; IABP, intra-aortic balloon pump; VAD, ventricular assist device.

The data are expressed as No. (%) or median [interquartile range].

Table 2 of the supplementary data

Univariable logistic regression analysis (imputed population) for the association with retransplant

Variable	Odds ratio	95%CI	<i>P</i>
Recipient			
<i>Age, y</i>	0.98	0.97-0.99	< .001
<i>Sex, female</i>	1.06	0.73-1.54	.75
<i>Weight, kg</i>	1.00	0.98-1.01	.59
<i>Renal dysfunction</i>	4.05	2.94- 5.56	< .001
<i>Pulmonary vascular resistance, Wood units</i>	0.88	0.75-1.03	.10
<i>Infection pre-HT</i>	1.38	0.87-2.21	.15
<i>Diabetes pre-HT</i>	1.27	0.86-1.89	.23
<i>COPD pre-HT</i>	0.62	0.33-1.16	.13
<i>Hypertension pre-HT</i>	1.69	1.23-2.33	< .001
<i>Cytomegalovirus serology (+)</i>	1.44	0.90-2.29	.12
<i>Peripheral vascular disease</i>	1.40	0.78-2.50	.21
<i>Mechanical ventilation pre-HT</i>	3.27	2.33-4.59	< .001

<i>Circulatory support pre-HT</i>			.01
None	1		
IABP	2.48	1.73-3.55	< .001
ECMO	1.01	0.41-2.59	.98
VAD	1.20	0.62-2.31	.58
<i>Neoplasia pre-HT</i>	0.59	0.29-1.19	.14
Donor			
<i>Age, y</i>	0.99	0.98-1.00	.19
<i>Sex, female</i>	0.92	0.64-1.31	.63
<i>Weight, kg</i>	0.99	0.98-1.00	.12
<i>Cause of death</i>			.46
Traumatic	1		
Stroke	0.91	0.64-1.30	.62
Other	1.18	0.80-1.73	.40
<i>Recipient male/donor female</i>	0.86	0.54-1.38	.52
<i>Recipient/donor weight ratio</i>	1.00	0.99-1.01	.47

Surgical procedure			
<i>HT era</i>			
1987-2002	1		
2000-2018	0.95	0.70-1.30	.76
<i>Cold ischemia time, h</i>	1.16	1.01-1.34	.04
<i>Bicaval surgical technique</i>	0.52	0.37-0.72	< .001
<i>Induction therapy</i>	0.56	0.41-0.76	< .001

COPD, chronic obstructive pulmonary disease; ECMO, extracorporeal membrane oxygenator; HT, heart transplant; IABP, intra-aortic balloon pump; VAD, ventricular assist device.

Table 3 of the supplementary data

Univariable parametric regression analysis with Weibull distribution for posttransplant mortality in retransplant compared with the no retransplantation population (imputed population)

Variable	Hazard ratio	95%CI	<i>P</i>
<i>Re-HT</i>	1.81	1.53-2.15	< .001
Recipient			
<i>Age, y</i>	1.01	1.01-1.02	< .001
<i>Sex, female</i>	0.88	0.81-0.95	.001
<i>Weight, kg</i>	1.00	1.00-1.00	.28
<i>Renal dysfunction</i>	1.34	1.24-1.44	< .001
<i>Pulmonary vascular resistance, Wood units</i>	1.04	1.02-1.06	< .001
<i>Infection pre-HT</i>	1.10	1.00-1.22	.05
<i>Diabetes pre-HT</i>	1.19	1.10-1.29	< .001
<i>COPD pre-HT</i>	1.12	1.02-1.23	.01
<i>Hypertension pre-HT</i>	1.11	1.04-1.19	.001
<i>Cytomegalovirus serology (+)</i>	1.10	1.01-1.20	.02

<i>Peripheral vascular disease</i>	1.26	1.12-1.41	< .001
<i>Mechanical ventilation pre-HT</i>	1.31	1.19-1.43	< .001
<i>Circulatory support pre-HT</i>			.95
None	1		
IABP	0.99	0.90-1.09	.88
ECMO	1.08	0.89-1.31	.45
VAD	0.98	0.83-1.15	.78
<i>Cardiac surgery pre-HT</i>	1.25	1.17-1.34	< .001
<i>Neoplasia pre-HT</i>	1.16	0.99-1.38	.07
Donor			
<i>Age, y</i>	1.00	1.00-1.00	.68
<i>Sex, female</i>	1.03	0.96-1.10	.44
<i>Weight, kg</i>	0.99	0.99-1.00	< .001
<i>Cause of death</i>			.85
Traumatic	1		
Stroke	0.98	0.92-1.05	.54

Other	1.00	0.93-1.09	.90
<i>Recipient male/donor female</i>	1.14	1.06-1.23	< .001
<i>Recipient/donor weight ratio</i>	1.00	1.00-1.00	< .001
Surgical procedure			
<i>HT era</i>			
1987-2002	1		
2000-2018	0.64	0.60-0.68	< .001
<i>Cold ischemia time, h</i>	0.99	0.96-1.02	.54
<i>Bicaval surgical technique</i>	0.81	0.76-0.86	< .001
<i>Induction therapy</i>	0.28	0.58- 0.66	< .001

COPD, chronic obstructive pulmonary disease; ECMO, extracorporeal membrane oxygenator; HT, heart transplant; IABP, intra-aortic balloon pump; VAD, ventricular assist device.

Table 4 of the supplementary data

Missing values

Variable	N	Percentage
Recipient age	0	0.0
Recipient sex	0	0.0
Recipient weight	171	2.3
Renal dysfunction	365	4.8
Pulmonary vascular resistance	1331	17.5
Infection pre-HT	260	3.4
Diabetes pre-HT	288	3.8
COPD pre-HT	460	6.1
Hypertension pre-HT	399	5.3
Cytomegalovirus serology (+)	566	7.5
Peripheral vascular disease	295	3.9
Mechanical ventilation pre-HT	251	3.3
Circulatory support pre-HT	237	3.1

Cardiac surgery pre-HT	244	3.2
Neoplasia pre-HT	338	4.5
Donor age, y	109	1.4
Donor sex	167	2.2
Donor weight, kg	276	3.6
Donor cause of death	0	0.0
Recipient male/donor female	167	2.2
Recipient/donor weight ratio	392	5.2
HT era	0	0.0
Surgical technique	142	1.9
Cold ischemia time, h	177	2.3
Induction therapy	6	0.1
Total missing values	6641	3.6
Cases with missing values	2381	31.4

COPD, chronic obstructive pulmonary disease; HT, heart transplant.