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PURPOSE

Insults to the donor heart during heart transplantation (HT) include ischemia and reperfusion injury after release of the aortic cross-clamp in the recipient. Restoration of heart beat after aortic unclamping can be by spontaneous resumption of sinus rhythm, pacing for atrioventricular (AV) block, or direct-current (DC) cardioversion for ventricular fibrillation. We investigated the association between mode of heart beat restoration and primary graft dysfunction (PGD).

RESULTS

Baseline characteristics differing among the groups included proportion of women, pre-HT amiodarone and gender mismatch (Table). PGD was significantly higher for the P-group (71%) > DC-group (59%) >S-group (21%, p<0.001). Multivariable analysis consistently showed that restoration of sinus by DC, and pacing for AV block, were independently associated with significant ~5-fold and ~10-fold increased risk for PGD, respectively (Figure) compared to spontaneous sinus restoration. Consistently, 30-day mortality was significantly lower for S- (6%) than for DC- (17%) patients and highest for the P group (22%, p<0.001).

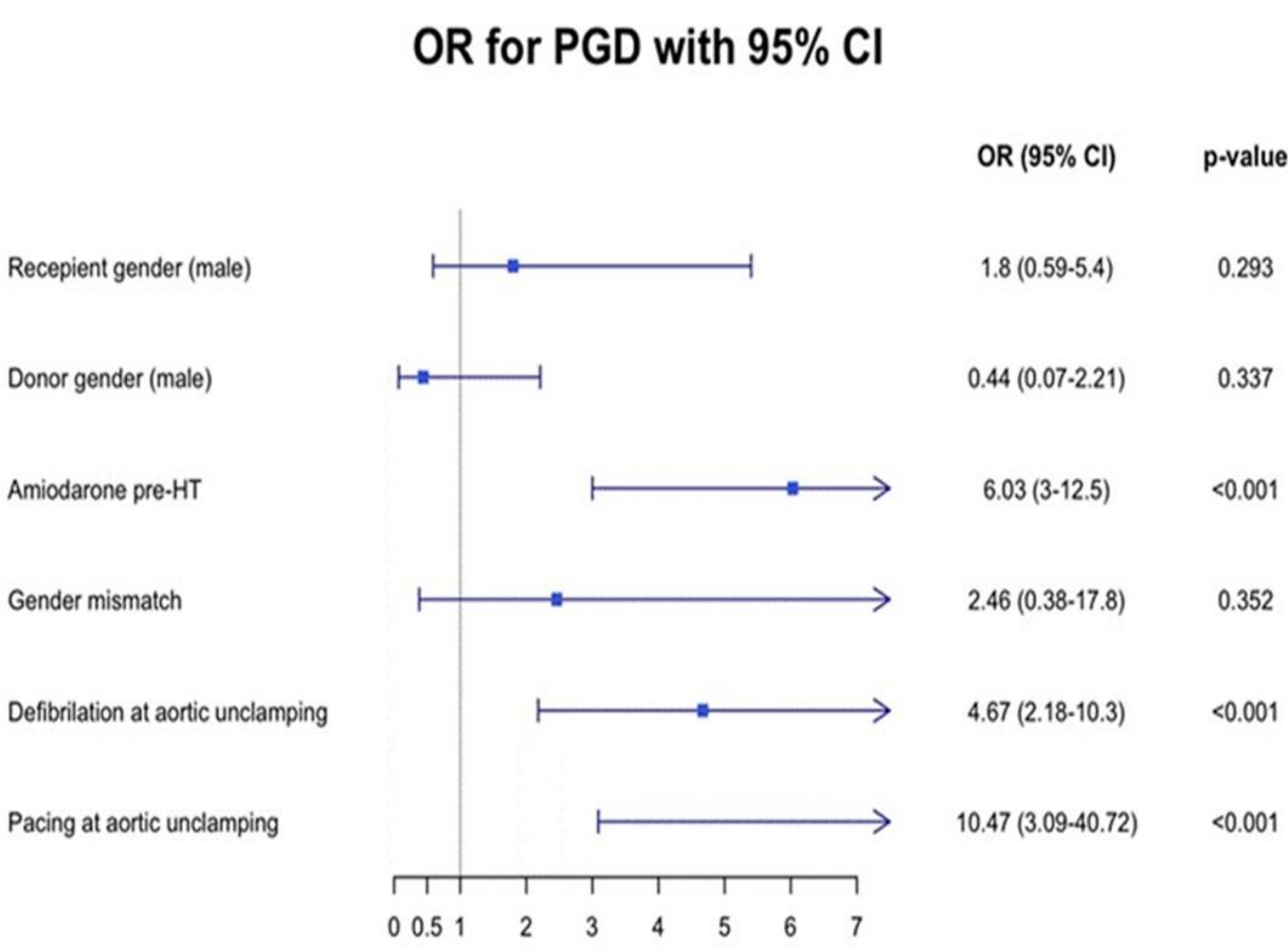
METHODS

HT recipients between 1997-2017 were grouped by mode of heart beat restoration after aortic unclamping into: spontaneous (S; 126 pts), pacing (P; 17 pts), or DC (58 pts) groups. Endpoints were 30-day mortality and PGD (defined by the ISHLT consensus statement).

Patient Characteristics

Mode of sinus rhythm restoration				
	Spontaneous (S) N=126	Pace (P) N=17	Defibrillation (DC) N=58	p-value
Recipient age (years) (mean (SD))	49 (13)	50 (11)	51(12)	0.522
Recipient Gender (female) (%)	32 (25)	6 (35)	2 (3)	0.001
Etiology Non-ischemic (%)	64 (51)	7 (41)	25 (43)	0.531
Elevated recipient PVR>3 wu(%)	29 (34)	3 (30)	10 (31)	0.920
Amiodarone pre-HT (%)	33 (28)	7 (50)	30 (55)	0.002
Mechanical circulatory support (%)	34 (27)	2 (12)	10 (17)	0.161
Donor age (years) (mean (SD))	32 (12)	34 (11)	36. (13)	0.078
Predicted heart mass ratio	1.2 (0.8)	1.3 (0.6)	1.2 (0.2)	0.661
Ischemic time (min) (mean (SD))	161 (45)	158 (45)	164 (45)	0.835
Gender mismatch (%)	18 (14.3)	7 (41)	13 (22)	0.021

Odds Ratio for primary graft dysfunction



CONCLUSIONS

Spontaneous restoration of sinus after aortic unclamping at HT is associated with a reduced risk for PGD and early mortality, whereas pacing for AV block and DC are associated with an increased risk.