

Supplementary material

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Table S1. Baseline characteristics and outcome of all upgrade patients according to urgent and scheduled procedure mode

	Urgent (n = 24)	Scheduled (n = 70)	P-value
Age, years, median (IQR)	59 (55–67)	65 (57–72)	0.08
Women, n (%)	2 (8.3%)	13 (18.6%)	0.17
Non-ischemic cardiomyopathy, n (%)	16 (66.7%)	28 (40.0%)	0.04
Previous myocardial infarction, n (%)	8 (33.3%)	43 (61.4%)	0.08
GFR, ml/min/1.73 m ² , median (IQR)	51.9 (44–66)	55.0 (45–70)	0.75
Diabetes mellitus, n (%)	8 (33.3%)	29 (41.4%)	0.75
Atrial fibrillation, n (%)	17 (70.8%)	43 (61.4%)	0.68
NYHA class			<0.005
II	0	11 (15.7%)	
III	5 (20.8%)	51 (72.9%)	
LVEF, %, median (IQR)	20.4 (15–25)	22.7 (18–27)	0.79
LVEDD, mm, median (IQR)*	67 (62–78)	70 (65–77)	0.35

QRS morphology**			0.40
-LBBB, n (%)	9 (37.5%)	19 (27.1%)	
-Non-specific IVCD, n (%)	3 (12.5%)	7 (10%)	
QRS duration**			
-Intrinsic, ms, median (IQR)	165 (153–172)	160 (150–166)	0.53
-Paced, ms, median (IQR)	200 (189–218)	200 (188–210)	0.66
RV pacing >40%, n (%)	11 (45.8%)	41 (58.6%)	0.40
Time from the previous implantation or device replacement, months, median (IQR)	56 (24–75)	53 (23–63)	0.77
Follow-up, months, median (IQR)	29 (6–53)	44 (33–60)	0.01
Deaths, n (%)	18 (75.0%)	25 (35.7%)	<0.001
Cardiac transplantations, n (%)	3 (12.5%)	5 (7.1%)	0.70

Continuous variables are presented as median (interquartile [IQR]), nominal variables are presented as frequency (%)

Abbreviations: IVCD, intraventricular conduction delay; LVEDD, left ventricular end-diastolic diameter; LVEF, left ventricular ejection fraction; NYHA, New York Heart Association; RV, right ventricular

* available data for 90 patients

** available data for 89 patients

Table S2. Univariable and multivariable Cox regression analysis for survival in all upgrade patients

	Univariable		Multivariable	
	HR (95% CI)	P-value	HR (95% CI)	P-value
Urgent procedure	3.00 (1.61–5.59)	<0.01	2.79 (1.28–6.09)	<0.01
Age, years	1.00 (0.97–1.02)	0.75		
Female sex	0.61 (0.25–1.44)	0.26		
Non-ischemic cardiomyopathy	1.12 (0.61–2.08)	0.71		
Previous myocardial infarction	0.76 (0.41–1.41)	0.38		
LVEF, %	0.97 (0.92–1.01)	0.15		
LVEDD, mm	1.02 (0.99–1.06)	0.15		
LBBB	1.30 (0.70–2.44)	0.41		
NYHA class	1.76 (1.05–2.93)	0.03	1.08 (0.59– 1.98)	0.82
Atrial Fibrillation	1.12 (0.59–2.12)	0.72		
RV pacing >40%	0.52 (0.28–0.96)	0.04	0.54 (0.29–0.98)	0.046
GFR, ml/min/1.73 m ²	1.00 (0.97–1.00)	0.09		
Diabetes mellitus	1.83 (0.98–3.43)	0.06		

Abbreviations: CI, confidence interval; HR – hazard ratio; LVEDD, left ventricular end-diastolic diameter; LVEF, left ventricular ejection fraction; NYHA, New York Heart Association; RV, right ventricular

Table S3. Univariable Cox regression analysis for survival in urgent vs. scheduled procedures

	Urgent		Scheduled	
	HR (95% CI)	<i>P</i> -value	HR (95% CI)	<i>P</i> -value
Age, years	1.01 (0.96–1.05)	0.80	1.00 (0.96–1.04)	0.98
Female sex	*		1.07 (0.42–2.70)	0.89
Non-ischemic cardiomyopathy	0.87 (0.33–2.31)	0.78	0.94 (0.41–2.15)	0.88
Previous myocardial infarction	0.95 (0.88–1.03)	0.84	0.79 (0.35–1.77)	0.57
LVEF, %	0.95 (0.88–1.03)	0.22	0.98 (0.92–1.04)	0.54
LVEDD, mm	1.01 (0.95–1.07)	0.77	1.04 (1.00–1.09)	0.052
LBBB	1.01 (0.37–2.71)	0.99	1.41 (0.63–3.18)	0.40
NYHA class	1.32 (0.38–4.62)	0.66	1.02 (0.48–2.15)	0.96
Atrial Fibrillation	0.5 (0.19–1.32)	0.16	1.52 (0.65–3.57)	0.33
RV pacing >40%	0.41 (0.15–1.11)	0.08	0.66 (0.29–1.48)	0.31
GFR, ml/min/1.73 m ²	1.00 (0.97–1.03)	0.80	0.98 (0.96–1.00)	0.10
Diabetes mellitus	1.55 (0.59–4.09)	0.38	1.84 (0.80–4.21)	0.15

Abbreviations: CI, confidence interval; HR – hazard ratio; LVEDD, left ventricular end-diastolic diameter; LVEF, left ventricular ejection fraction; NYHA, New York Heart Association; RV, right ventricular

* 100% survival among females was reported in this group