

## Appendix A

**Table A.1**

Univariate and multivariable logistic regression to identify the pre-TAVI determinants for post-TAVI global longitudinal strain  $\geq -14$ .

Effect	Unit	Univariate analysis		Multivariable analysis	
		Estimate (95% CI)	<i>P</i>	Estimate (95% CI)	<i>P</i>
NT-proBNP (pg/mL)	2000	1.89 (1.21–2.96)	0.0055	0.88 (0.58–1.37)	0.58
LV mass index (g/m <sup>2</sup> )	40	1.67 (1.09–2.55)	0.0173	1.37 (0.75–2.51)	0.31
LVEF (%)	10	0.39 (0.26–0.58)	< 0.0001	0.69 (0.42–1.16)	0.16
SVi (mL/m <sup>2</sup> )	12	0.49 (0.33–0.72)	0.0003	0.80 (0.50–1.28)	0.35
GWE (mmHg%)	5	0.38 (0.25–0.58)	< 0.0001	0.55 (0.34–0.91)	0.0209
GWI (mmHg%)	600	0.24 (0.14–0.40)	< 0.0001		
GCW (mmHg%)	600	0.28 (0.18–0.45)	< 0.0001	0.50 (0.27–0.94)	0.0306

CI: confidence interval; GCW: global constructive work; GWE: global work efficiency; GWI: global work index; LV: left ventricular; LVEF: left ventricular ejection fraction; NT-proBNP: N-terminal prohormone of brain natriuretic peptide; SVi: stroke volume index; TAVI: transcatheter aortic valve implantation.

**Table A.2**

Multivariable logistic regression to identify the pre-TAVI determinants for post-TAVI global longitudinal strain  $\geq -14$ , in the subpopulation with pre-TAVI global longitudinal strain  $< -14$ .

Effect	Unit	Estimate (95% CI)	<i>P</i>
NT-proBNP (pg/mL)	2000	0.87 (0.16–4.74)	0.88
LV mass index (g/m <sup>2</sup> )	40	2.03 (0.73–5.60)	0.17
LVEF (%)	10	0.76 (0.32–1.80)	0.53
SVi (mL/m <sup>2</sup> )	12	0.82 (0.39–1.75)	0.61
GWE (mmHg%)	5	0.22 (0.06–0.81)	0.0225
GWI (mmHg%)	600	4.31 (0.25–72)	0.31
GCW (mmHg%)	600	0.29 (0.02–3.53)	0.33

CI: confidence interval; GCW: global constructive work; GWE: global work efficiency; GWI: global work index; LV: left ventricular; LVEF: left ventricular ejection fraction; NT-proBNP: N-terminal prohormone of brain natriuretic peptide; SVi: stroke volume index; TAVI: transcatheter aortic valve implantation.

**Table A.3**

Univariate logistic regression to identify the pre-TAVI determinants for post-TAVI global longitudinal strain deterioration.

Effect	Standardized estimate	<i>P</i>
GLS	-0.311	0.0004
GWl	-0.212	0.0182
GCW	-0.207	0.0208
LAVi	-0.168	0.07
TAPSE	-0.155	0.21
LVEF	-0.145	0.11
NT-proBNP	0.108	0.26
SVi	-0.107	0.24
Atrial fibrillation	0.099	0.28
Sex	-0.078	0.39
AV mean gradient	-0.074	0.41
CAD	0.040	0.66
GWE	-0.034	0.71
GWW	-0.030	0.74
Diabetes	0.028	0.76
E/E'	-0.024	0.81
LV mass index	-0.024	0.80
V <sub>max</sub> TR	-0.019	0.86
Age	0.017	0.85
IVS diameter	-0.012	0.90

---

AV: aortic valve; GCW: global constructive work; GLS: global longitudinal strain; GWE: global work efficiency; GWI: global work index; GWW: global wasted work; IVS: interventricular septum; LAVi: left atrium volume index; LV: left ventricular; LVEF: left ventricular ejection fraction; NT-proBNP: N-terminal prohormone of brain natriuretic peptide; SVi: stroke volume index; TAVI: transcatheter aortic valve implantation; TAPSE: tricuspid annular plane systolic excursion;  $V_{\max}$  TR: maximal tricuspid regurgitation velocity.

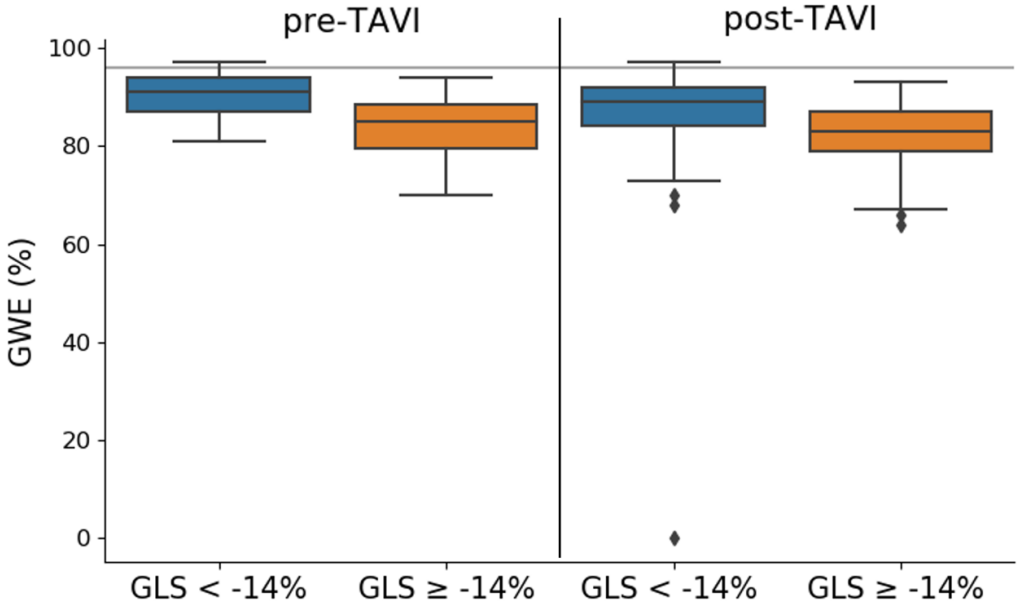
**Table A.4**

Univariate and multivariable logistic regression to identify the pre-TAVI determinants for New York Heart Association class III and IV symptoms.

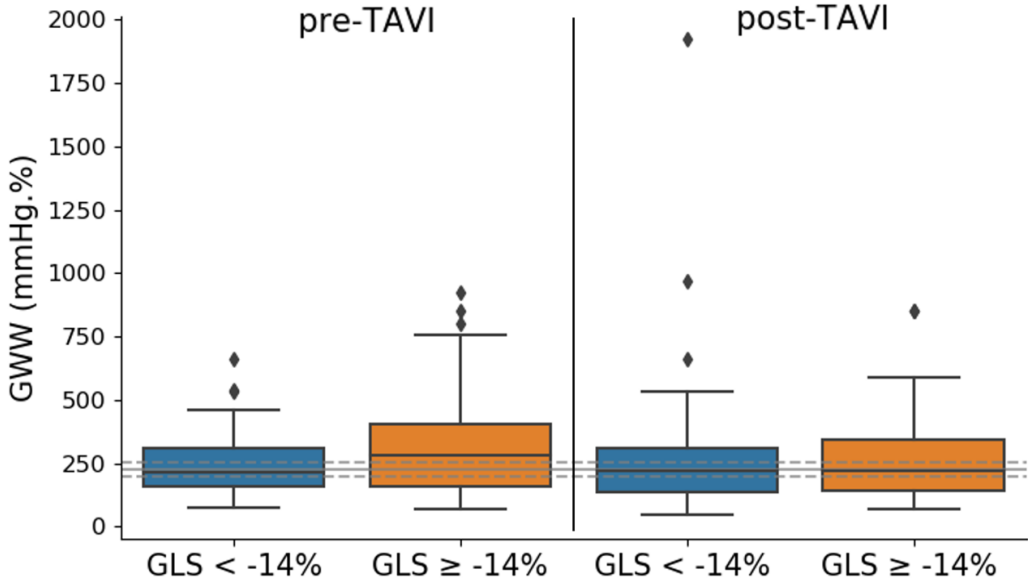
Effect	Unit	Univariate analysis		Multivariable analysis	
		Estimate (95% CI)	<i>P</i>	Estimate (95% CI)	<i>P</i>
NT-proBNP (pg/mL)	2000	1.81 (1.20–2.72)	0.0046	1.53 (0.95–2.46)	0.08
LVEF (%)	10	0.73 (0.55–0.97)	0.0278	1.06 (0.70–1.60)	0.79
GLS (%)	3	1.42 (1.06–1.91)	0.0192	1.13 (0.59–2.13)	0.72
GWI (mmHg%)	600	0.69 (0.50–0.95)	0.0238		
GCW (mmHg%)	600	0.67 (0.49–0.91)	0.0100	0.84 (0.45–1.57)	0.59

CI: confidence interval; GCW: global constructive work; GLS: global longitudinal strain; GWI: global work index; LVEF: left ventricular ejection fraction; NT-proBNP: N-terminal prohormone of brain natriuretic peptide; TAVI: transcatheter aortic valve implantation.

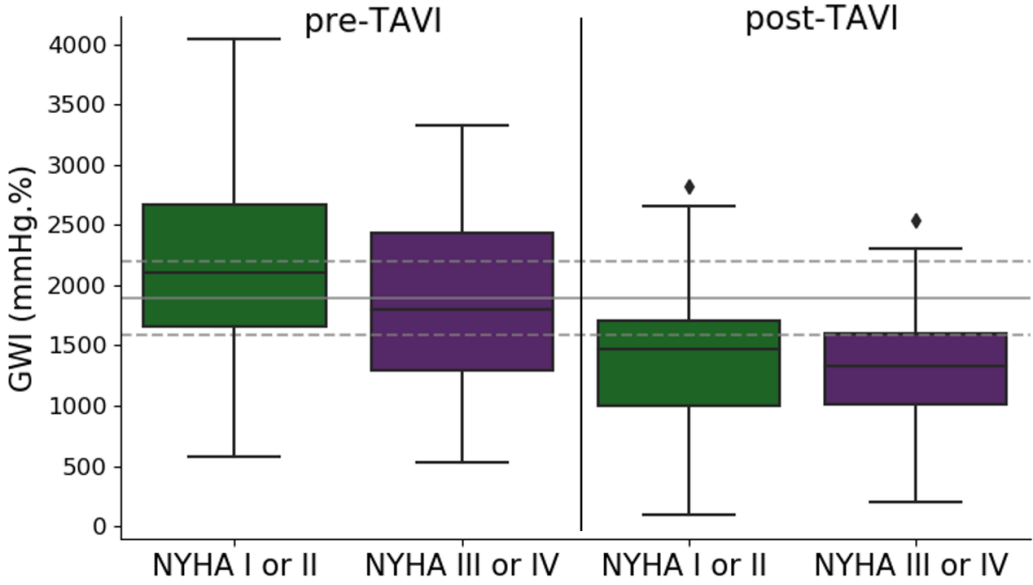
**Fig. A.1.** Evolution of global work efficiency (GWE) after transcatheter aortic valve implantation (TAVI) based on pre-TAVI global longitudinal strain (GLS) stratification. Horizontal grey line corresponds to mean values in healthy population [14]. Relative change, defined as (post-TAVI measure minus pre-TAVI measure) divided by pre-TAVI measure, was statistically significant in patients with GLS < -14%:  $P < 0.0001$ .



**Fig. A.2.** Evolution of global wasted work (GWW) after transcatheter aortic valve implantation (TAVI) based on pre-TAVI global longitudinal strain (GLS) stratification. Horizontal grey lines correspond to mean values and standard deviation in healthy population [15]. Relative change, defined as (post-TAVI measure minus pre-TAVI measure) divided by pre-TAVI measure, was statistically not significant in both subgroups (GLS < -14% or GLS ≥ -14%).

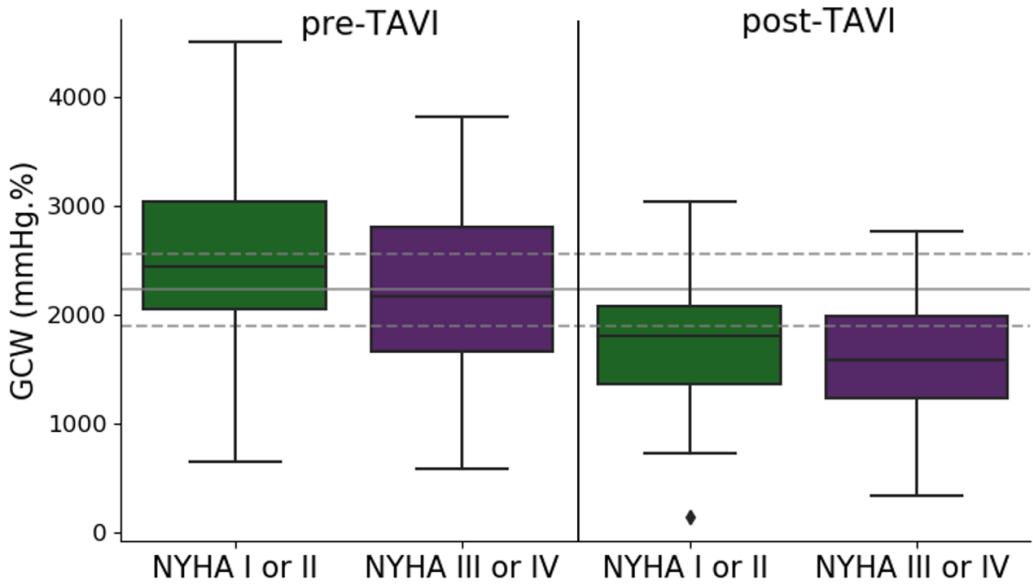


**Fig. A.3.** Evolution of global work index (GWI) after transcatheter aortic valve implantation (TAVI) based on pre-TAVI New York Heart Association (NYHA) stratification. Horizontal grey lines correspond to mean values and standard deviation in healthy population [15]. Relative change, defined as (post-TAVI measure minus pre-TAVI measure) divided by pre-TAVI measure, was statistically significant in both subgroups (NYHA class I or II versus NYHA class III or IV) ( $P < 0.0001$ ), without significant heterogeneity across subgroups ( $P$  value for interaction = 0.162).

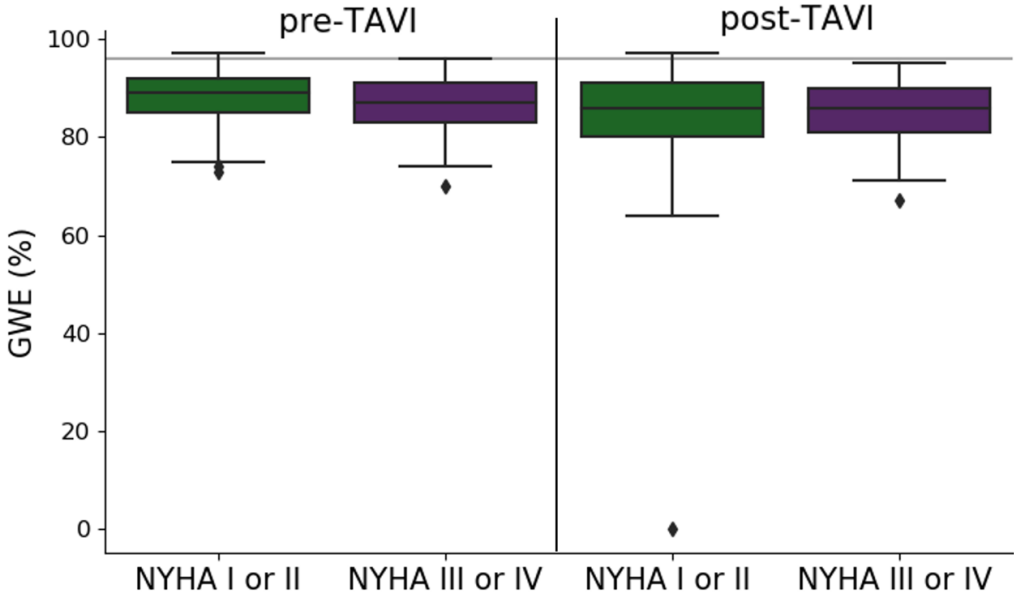




**Fig. A.4.** Evolution of global constructive work (GCW) after transcatheter aortic valve implantation (TAVI) based on pre-TAVI New York Heart Association (NYHA) stratification. Horizontal grey lines correspond to mean values and standard deviation in healthy population [15]. Relative change, defined as (post-TAVI measure minus pre-TAVI measure) divided by pre-TAVI measure, was statistically significant in both subgroups (NYHA class I or II versus NYHA class III or IV) ( $P < 0.0001$ ), without significant heterogeneity across subgroups ( $P$  value for interaction = 0.138).



**Fig. A.5.** Evolution of global work efficiency (GWE) after transcatheter aortic valve implantation (TAVI) based on pre-TAVI New York Heart Association (NYHA) stratification. Horizontal grey line corresponds to mean values in healthy population [15]. Relative change, defined as (post-TAVI measure minus pre-TAVI measure) divided by pre-TAVI measure, was statistically significant only in patients with pre-TAVI NYHA class I or II:  $P = 0.0132$ .



**Fig. A.6.** Evolution of global wasted work (GWW) after transcatheter aortic valve implantation (TAVI) based on pre-TAVI New York Heart Association (NYHA) stratification. Horizontal grey lines correspond to mean values and standard deviation in healthy population [15]. Relative change, defined as (post-TAVI measure minus pre-TAVI measure) divided by pre-TAVI measure, was not statistically significant in both subgroups (NYHA class I or II versus NYHA class III or IV).

