

SUPPLEMENTARY MATERIAL

Models of the associations between each preoperative SBP dynamical metric and ICU LOS analyzed both as a continuous (Table A) and as binary variable (Table B) are presented below for the entire study cohort, which includes patients with paroxysmal or persistent atrial flutter or atrial fibrillation during final preoperative preparation (n = 44), electronic pacemaker (n = 10) and those (n = 9) who died within 30 days of surgery given that 33% of them (3 out of 9) had a “misleadingly” short (≤ 2 days) ICU LOS.

Table A. Unadjusted and adjusted linear regression analysis of the associations between each preoperative SBP dynamical metric and postoperative number of hours in the ICU.

A. Sub-group with STS (N = 389)															
Model 0: Unadjusted						Model 1: Age & Sex					Model 2: STS				
Variable	β	95% CI	P value	R-squared		β	95% CI	P value	R-squared		β	95% CI	P value	R-squared	
BPF (%)	0.22	0.11	0.31	< 0.001	0.048	0.17	0.06	0.29	0.003	0.069	0.10	-0.00	0.19	0.059	0.123
Mean SBP (mmHg)	-0.01	-0.13	0.10	0.809	0.000	0.03	-0.15	0.07	0.486	0.045	-0.00	-0.11	0.10	0.965	0.115
SD (mmHg)	-0.02	-0.11	0.06	0.674	0.000	-0.02	-0.11	0.07	0.668	0.044	0.00	-0.08	0.09	0.923	0.115
CV	-0.02	-0.11	0.08	0.742	0.000	-0.01	-0.09	0.08	0.916	0.044	-0.00	-0.09	0.08	0.971	0.115
ARV (mmHg)	0.13	0.02	0.24	0.025	0.034	0.11	-0.00	0.22	0.056	0.066	0.07	-0.03	0.17	0.155	0.125
DFA α ₁	-0.21	-0.31	-0.10	< 0.001	0.047	-0.16	-0.27	-0.04	0.007	0.069	-0.06	-0.17	0.04	0.276	0.118
STS (%)	0.33	0.23	0.42	< 0.001	0.115										
B. Group with EuroSCORE II (N = 439)															
Model 0: Unadjusted						Model 1: Age & Sex					Model 2: EuroSCORE II				
Variable	β	95% CI	P value	R-squared		β	95% CI	P value	R-squared		β	95% CI	P value	R-squared	
BPF (%)	0.24	0.13	0.33	< 0.001	0.049	0.19	0.08	0.29	0.001	0.070	0.14	0.04	0.24	0.006	0.107
Mean SBP (mmHg)	0.01	-0.10	0.12	0.879	0.000	-0.01	-0.12	0.09	0.833	0.042	0.02	-0.08	0.12	0.685	0.092
SD (mmHg)	-0.02	-0.11	0.07	0.637	0.000	-0.02	-0.11	0.06	0.603	0.042	-0.01	-0.09	0.08	0.871	0.092
CV	-0.03	-0.11	0.06	0.581	0.001	-0.01	-0.10	0.07	0.661	0.042	-0.02	-0.11	0.07	0.653	0.092
ARV (mmHg)	0.14	0.03	0.26	0.015	0.036	0.12	0.01	0.24	0.035	0.068	0.10	-0.01	0.20	0.062	0.109
DFA α ₁	-0.22	0.33	-0.11	< 0.001	0.048	-0.17	-0.29	-0.06	0.003	0.070	-0.10	-0.22	0.01	0.076	0.100
EuroSCORE II (%)	0.31	0.21	0.41	< 0.001	0.092										

The values shown are the regression coefficients (β) and 95% CIs for standardized variables. Separate models were fitted for each of the different BPV indicators. The adjustments were age and sex in Model 1, and STS or EuroSCORE II in Model 2. Statistically significant P values are highlighted in bold. Abbreviations: ARV, average real variability; BPF, blood pressure fragmentation; CI, confidence interval; CV, coefficient of variation; DFA, detrended fluctuation analysis; EuroSCORE, European System for Cardiac Operative Risk Evaluation; ICU, intensive care unit; LOS, length of stay; SBP, systolic blood pressure; SD, standard deviation; and STS, Society of Thoracic Surgeons.

Table B. Unadjusted and adjusted modified Poisson regression analyses of the associations between each preoperative SBP dynamical metric and long ICU LOS.

A. Sub-group with STS (N = 389)												
Model 0: Unadjusted					Model 1: Age & Sex				Model 2: STS			
Variable	RR	95% CI	P value		RR	95% CI	P value		RR	95% CI	P value	
BPF (%)	1.24	1.12	1.37	< 0.001	1.17	1.05	1.31	0.005	1.15	1.04	1.26	0.008
Mean SBP (mmHg)	0.98	0.89	1.09	0.723	0.95	0.86	1.05	0.351	0.99	0.90	1.08	0.818
SD (mmHg)	0.96	0.86	1.06	0.398	0.96	0.86	1.06	0.385	0.97	0.88	1.08	0.578
CV	0.96	0.86	1.06	0.425	0.97	0.87	4.00	0.561	0.97	0.87	1.07	0.530
ARV (mmHg)	1.08	1.01	1.15	0.019	1.06	0.99	1.13	0.082	1.05	0.99	1.11	0.123
DFA α_1	0.85	0.78	0.94	0.001	0.90	0.82	1.00	0.040	0.93	0.84	1.02	0.158
STS (%)	1.25	1.14	1.36	< 0.001								
B. Group with EuroSCORE II (N = 439)												
Model 0: Unadjusted					Model 1: Age & Sex				Model 2: EuroSCORE II			
Variable	RR	95% CI	P value		RR	95% CI	P value		RR	95% CI	P value	
BPF (%)	1.23	1.12	1.35	< 0.001	1.18	1.06	1.30	0.002	1.12	1.02	1.24	0.022
Mean SBP (mmHg)	1.00	0.91	1.10	0.956	0.98	0.90	1.08	0.737	1.02	0.93	1.11	0.665
SD (mmHg)	0.97	0.87	1.06	0.492	0.96	0.88	1.06	0.454	0.98	0.89	1.08	0.701
CV	0.96	0.87	1.06	0.447	0.97	0.88	1.06	0.489	0.97	0.88	1.06	0.494
ARV (mmHg)	1.08	1.01	1.15	0.010	1.06	1.00	1.13	0.038	1.04	0.99	1.10	0.113
DFA α_1	0.84	0.77	0.91	< 0.001	0.88	0.80	0.96	0.003	0.94	0.85	1.03	0.191
EuroSCORE II (%)	1.32	1.22	1.42	< 0.001								

The values shown are the relative risk (RR) and 95% CIs for standardized variables. Separate models were fitted for each of the different BPV indicators. The adjustments were age and sex in Model 1, and STS or EuroSCORE II in Model 2. Statistically significant P values are highlighted in bold. Abbreviations: ARV, average real variability; BPF, blood pressure fragmentation; CI, confidence interval; CV, coefficient of variation; DFA, detrended fluctuation analysis; EuroSCORE, European System for Cardiac Operative Risk Evaluation; ICU, intensive care unit; LOS, length of stay; SBP, systolic blood pressure; SD, standard deviation; and STS, Society of Thoracic Surgeons.

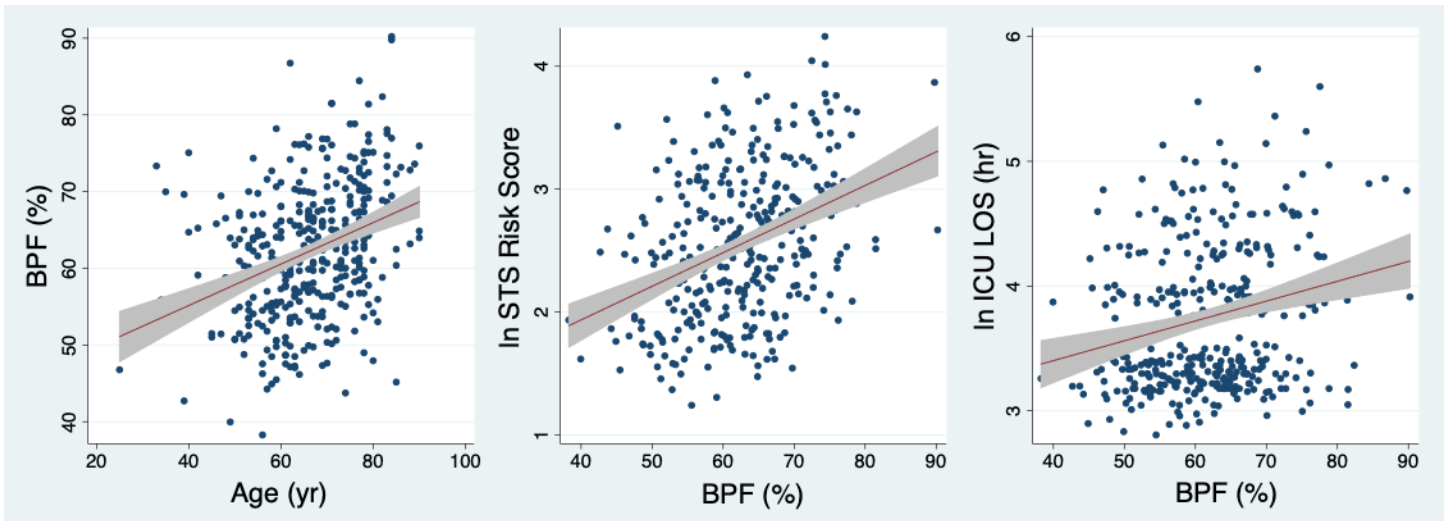


Figure A: Scatter plots with regression lines (red) and their 95% confidence intervals (grey). Preoperative blood pressure fragmentation (BPF) versus age (left); the natural logarithm of the Society of Thoracic Surgeons (STS) risk score versus BPF (center) and the natural logarithm of the postoperative number of hours in the ICU versus BPF (right).