Supplementary file 4. Baseline characteristics of study population according to heart rhythm in patients with HFrEF, HFmrEF, and HFpEF for the propensity score matched cohort

	HFrEF (EF <40%)				HFmrEF (EF 40–49%)				HFpEF (EF≥50%)			
	Without AF (n=1,685; 72.4%)	With AF (n=642; 27.6%)	*P*-value	SMD (%)	Without AF (n=276; 64.3%)	With AF (n=153; 35.7%)	*P*-value	SMD (%)	Without AF (n=572; 64.4%)	With AF (n=316; 35.6%)	*P*-value	SMD
Characteristics												
Age, yrs	66.0±15.4	67.1±13.4	0.081	9.3	71.6±13.4	72.5±11.7	0.499	20.4	72.6±13.6	73.2±12.2	0.517	11.9
Sex			0.150	1.0			0.888	0.01			0.349	3.01
Male	1024 (60.8)	411 (64.0)			121 (43.8)	66 (43.1)			217 (37.9)	130 (41.1)		
Female	661 (39.2)	231 (36.0)			155 (56.2)	87 (56.9)			355 (62.1)	186 (58.9)		
Smoking status			0.344	1.7			0.605	2.3			0.220	2.1
Current	363 (21.5)	130 (20.2)			31 (11.2)	13 (8.5)			77 (13.5)	34 (10.8)		
Ex	398 (23.6)	170 (26.5)			61 (22.1)	32 (20.9)			90 (15.7)	62 (19.6)		
Never	924 (54.8)	342 (53.3)			184 (66.7)	108 (70.6)			405 (70.8)	220 (69.6)		
Alcohol consumption			0.096	0.5			0.502	1.2			0.549	0.6
Heavy	124 (7.4)	62 (9.7)			16 (5.8)	5 (3.3)			28 (4.9)	21 (6.6)		
Social	608 (36.1)	242 (37.7)			74 (26.8)	41 (26.8)			143 (25.0)	77 (24.4)		
Never	953 (56.6)	338 (52.6)			186 (67.4)	107 (69.9)			401 (70.1)	218 (69.0)		
Medical history												
NYHA functional class			0.546	0.8			0.264	1.6			0.896	1.7
II	225 (13.4)	89 (13.9)			50 (18.1)	23 (15.0)			96 (16.8)	56 (17.7)		
III	601 (35.7)	242 (37.7)			82 (29.7)	57 (37.3)			205 (35.8)	115 (36.4)		
IV	859 (51)	311 (48.4)			144 (52.2)	73 (47.7)			271 (47.4)	145 (45.9)		
Hypertension	1000 (59.3)	368 (57.3)	0.375	1.1	202 (73.2)	105 (68.6)	0.316	1.9	395 (69.1)	203 (64.2)	0.143	3.3
Diabetes mellitus	726 (43.1)	242 (37.7)	0.018	0.1	110 (39.9)	52 (34)	0.230	0.4	208 (36.4)	100 (31.6)	0.157	1.0
Ischemic heart disease	800 (47.5)	232 (36.1)	<0.001	1.7	163 (59.1)	73 (47.7)	0.024	2.7	207 (36.2)	90 (28.5)	0.020	1.4
Renal failure	473 (28.1)	171 (26.6)	0.489	0.6	86 (31.2)	38 (24.8)	0.166	0.6	146 (25.5)	69 (21.8)	0.219	0.5
Cancer	146 (8.7)	59 (9.2)	0.689	0.4	22 (8.0)	15 (9.8)	0.517	0.4	46 (8.0)	28 (8.9)	0.673	0.6
Prior stroke	237 (14.1)	104 (16.2)	0.193	0.6	37 (13.4)	24 (15.7)	0.517	1.1	81 (14.2)	51 (16.1)	0.428	0.2
Examinations												
Heart rate, beats/min	95.4±23.1	97.5±29.3	0.100	0.2	89.4±22.7	91.6±29.3	0.428	18.0	83.5±22.1	86.0±26.5	0.150	7.7
Systolic blood pressure, mmHg	128.8±29.6	125.7±26.4	0.015	3.1	139.9±34.0	139.4±29.0	0.868	9.0	138.7±32.0	137.1±28.7	0.464	20.3
Diastolic blood pressure, mmHg	79.6±19.1	79.5±17.7	0.896	18.2	80.3±19.5	80.7±18.7	0.843	15.1	76.1±18.4	77.0±17.7	0.484	17.9
Body mass index, kg/m^2	23.1±3.9	23.3±3.8	0.327	6.0	23.2±3.6	23.3±3.7	0.924	7.0	23.9±4.0	23.5±4.2	0.254	7.4
Laboratory examinations												
White blood cells,10^3/mL	8.9±3.8	8.4±3.5	0.010	1.0	9.1±3.8	8.8±3.9	0.442	24.3	8.5±3.4	7.9±3.1	0.010	9.0
HbA1c, %	2.8±3.5	2.5±3.3	0.045	4.4	2.5±3.3	2.1±3.2	0.277	2.3	2.3±3.2	1.9±3.0	0.050	14.5
Potassium, mmol/L	4.4±0.7	4.4±0.6	0.451	1.3	4.4±0.8	4.3±0.6	0.444	1.8	4.3±0.7	4.3±0.7	0.303	1.6
Sodium ≥135 mmol/L	1325 (78.6)	487 (75.9)	0.149	0.7	227 (82.2)	128 (83.7)	0.710	1.1	452 (79.0)	247 (78.2)	0.765	0.1

Hemoglobin ≥12 g/dL	1076 (63.9)	455 (70.9)	0.001	1.1	119 (43.1)	79 (51.6)	0.090	0.7	266 (46.5)	151 (47.8)	0.714	1.4
Blood urea nitrogen ≥26 mg/dL	608 (36.1)	246 (38.3)	0.317	0.1	104 (37.7)	50 (32.7)	0.301	1.7	200 (35.0)	101 (32.0)	0.365	1.9
Creatinine ≥2mg/dL	252 (15.0)	87 (13.6)	0.391	0.3	54 (19.6)	19 (12.4)	0.059	1.8	74 (12.9)	31 (9.8)	0.167	0.8
BNP >900 pg/mL or NTproBNP >5000 pg/mL	997 (59.2)	357 (55.6)	0.120	0.3	154 (55.8)	69 (45.1)	0.034	2.6	199 (34.8)	94 (29.7)	0.126	1.4
Medications and device therapies												
ACEI or ARB	1399 (83.0)	511 (79.6)	0.061	0.03	202 (73.2)	106 (69.3)	0.389	0.1	366 (64.0)	183 (57.9)	0.074	2.7
Beta-blockers	1132 (67.2)	438 (68.2)	0.631	0.1	201 (72.8)	110 (71.9.)	0.836	2.4	307 (53.7)	166 (52.5)	0.745	0.1
Aldosterone antagonist	1074 (63.7)	415 (64.6)	0.685	0.6	142 (51.4)	88 (57.5)	0.227	0.4	278 (48.6)	173 (54.7)	0.079	1.7
Nitrate	981 (58.2)	352 (54.8)	0.139	0.6	193 (69.9)	96 (62.7)	0.129	3.2	314 (54.9)	152 (48.1)	0.052	1.1
Diuretic	1608 (95.4)	621 (96.7)	0.163	0.6	253 (91.7)	143 (93.5)	0.503	0.2	526 (92)	303 (95.9)	0.024	0.6
Anticoagulant	972 (57.7)	488 (76.0)	<0.001	2.1	171 (62.0)	99 (64.7)	0.572	2.1	275 (48.1)	191 (60.4)	<0.001	1.9
Antiplatelet	1146 (68.0)	397 (61.8)	0.005	1.3	212 (76.8)	109 (71.2)	0.204	1.2	326 (57.0)	186 (58.9)	0.620	1.6
Statin	839 (49.8)	257 (40.0)	<0.001	2.6	150 (54.3)	78 (51.0)	0.503	2.2	240 (42.0)	119 (37.7)	0.211	1.3

Continuous variables are reported as mean ± standard deviation, and categorical variables are reported as n (%).

ACEI, Angiotensin-converting enzyme inhibitor; SR, sinus rhythm; AF, atrial fibrillation; ARB, Angiotensin receptor blockers; BNP, brain natriuretic peptide; CRT, cardiac resynchronization therapy; EF, ejection fraction; HFrEF, heart failure with reduced ejection fraction; HFmrEF, heart failure with mid-range ejection fraction; HFpEF, heart failure with preserved ejection fraction; ICD, implantable cardiac defibrillator; NT-proBNP, N-terminal prohormone of brain natriuretic peptide; NYHA, New York Heart Association; SMD, standardized mean difference.