Supplemental Material

Table S1. Allometric indices for left atrial maximum and minimum volumes, left ventricular mass, and left ventricular end-diastolic volume, derived from CMR in the MESA reference sample.

CMR measure	Sex	Derived Index*
LA maximum volume (ml)	Men	100 X LA maximum volume / (2.616 X height$^{1.025}$ X weight$^{0.594}$)
	Women	100 X LA maximum volume / (2.859 X height$^{1.025}$ X weight$^{0.594}$)
LA minimum volume (ml)	Men	100 X LA minimum volume / (0.646 X height$^{1.394}$ X weight$^{0.673}$)
	Women	100 X LA minimum volume / (0.677 X height$^{1.394}$ X weight$^{0.673}$)
LV mass (g)	Men	100 X LV mass / (9.372 X height$^{0.368}$ X weight$^{0.557}$)
	Women	100 X LV mass / (7.515 X height$^{0.368}$ X weight$^{0.557}$)
LV end-diastolic volume (ml)	Men	100 X LV end-diastolic volume / (9.473 X height$^{1.724}$ X weight$^{0.385}$)
	Women	100 X LV end-diastolic volume / (9.357 X height$^{1.724}$ X weight$^{0.385}$)

* Height is in meters; weight is in kilograms

LA left atrial; LV left ventricular; CMR cardiac magnetic resonance; MESA Multi-Ethnic Study of Atherosclerosis

Table S2. Characteristics of participants with and without ambulatory ECG monitoring.

	With Ambulatory ECG monitoring n=1557	No Ambulatory ECG Monitoring n=1728
Age, yr, mean (SD)	67 (8)	68 (9)
Male, %	49%	45%
Race/Ethnicity, %		
White	41%	40%
Chinese	14%	12%
African-American	25%	26%
Hispanic	21%	23%
Body mass index, kg/m^2 , mean (SD)	28 (5)	29 (6)
Height (men), cm	172 (8)	172 (7)
Height (women), cm	159 (7)	158 (7)
Diabetes, %	17%	21%
Current smoking, %	7%	7%
Antihypertensive medication, %	49%	54%
Systolic BP, mmHg, mean (SD)	122 (19)	123 (21)
NT-proBNP,* pg/ml, mean (SD)	122 (221)	120 (202)
eGFR* (mL/min/1.73 m^2), mean (SD)	82 (20)	82 (21)
History of clinical atrial fibrillation, %	5%	4%
History of heart failure, %	1%	2%
History of stroke, %	1%	1%
History of myocardial infarction, %	2%	2%

	With Cardiac MR and Ambulatory ECG monitoring n=1213	With Cardiac MR but no Ambulatory ECG Monitoring n=955
Left atrial function, mean(SD)		
Longitudinal strain (%)	33 (14)	32 (14)
Total emptying fraction (%)	56 (11)	56 (11)

Passive emptying fraction (%)	24 (8)	24 (8)
Active emptying fraction (%)	42 (11)	43 (11)
Structure, mean(SD)		
Left atrium		
Maximum volume (ml)	64 (21)	64 (21)
Minimum volume (ml)	29 (15)	29 (15)
Left ventricle		
Mass (g)	123 (34)	123 (33)
End-diastolic volume (ml)	121 (30)	120 (32)

Table S3. Adjusted association of left atrial function and of left atrial and left ventricular structure with average PACs/hour from multivariable linear regression*

	Model 1†		Model 2‡		Model 3§	
CMR measure	Ratio of geometric means	95% Confidence Interval	Ratio of geometric means	95% Confidence Interval	Ratio of geometric means	95% Confidence Interval
Left atrial function, per 10%						
Peak longitudinal strain	0.95	0.88, 1.02	0.96	0.89, 1.03	0.95	0.88, 1.03
Total emptying fraction	0.80	0.72, 0.88	0.84	0.76, 0.93	0.84	0.75, 0.93
Passive emptying fraction	0.82	0.71, 0.94	0.86	0.75, 0.99	0.83	0.72, 0.95
Active emptying fraction	0.85	0.77, 0.93	0.89	0.81, 0.97	0.89	0.81, 0.98
Structure, per 25%						
Left atrium						
Maximum volume	1.16	1.07, 1.25	1.10	1.01, 1.19	1.07	0.97, 1.16
Minimum volume	1.13	1.07, 1.18	1.09	1.04, 1.14	1.07	1.02, 1.13
Left ventricle						
Mass	1.37	1.17, 1.59	1.27	1.08, 1.49	—	
End-diastolic volume	1.29	1.12, 1.47	1.21	1.05, 1.38	—	

* N of participants included in the analysis ranged from 1091 to 1113 for analyses of left atrial function and structure, and was 1147 for analyses of left ventricular structure.

† Model 1: Left atrial function measures are adjusted for age, sex, race, height and weight. Structure measures (volume and mass) are indexed to height and weight by sex and adjusted for age and race.

‡ Model 2: Left atrial function measures are adjusted as in Model 1 and are further adjusted for: diabetes, current smoking, use of antihypertensive medication, systolic blood pressure, history of clinically recognized AF, NT-proBNP, estimated glomerular filtration rate, and history of clinically-recognized AF. Structure measures (volumes and mass) are indexed and adjusted as in Model 1, and are further adjusted for the Model 2 clinical characteristics.

§ Model 3: Model 2 further adjusted for left ventricular mass and end-diastolic volume

Table S4. Demographic, clinical, and CMR characteristics of participants with no runs of SVT and in tertiles of the distribution of average runs of SVT per day*

	All participants	No runs of SVT	0.04-0.28 runs of SVT/day	≥0.29-1.0 runs of SVT/day	1.1-1474 runs of SVT/day
	n=1148	n=164	n=327	n=329	n=328
Age, yr, mean (SD)	67 (8)	64 (8)	65 (8)	67 (8)	71 (8)
Male, %	47	46	50	49	44
Race/Ethnicity, %					
White	43	29	39	45	51
Chinese	14	20	14	13	12
African-American	24	31	25	20	22
Hispanic	20	20	22	22	16
BMI, kg/m^2 , mean (SD)	28 (5)	28 (5)	29 (5)	28 (5)	28 (5)
Diabetes, %	15	15	18	15	13
Current smoking, %	7	5	9	7	6
Antihypertensive medication, %	48	45	43	49	52
Systolic BP, mmHg, mean (SD)	120 (18)	117 (17)	119 (17)	119 (18)	124 (21)
NT-proBNP, pg/ml, mean (SD)	102 (138)	71 (72)	80 (103)	97 (109)	143 (199)
eGFR (mL/min/1.73 m^2), mean (SD)	82 (20)	85 (20)	83 (19)	82 (19)	79 (21)
History of clinical AF, %	3	0	1	3	6
Left atrial function, mean (SD)					
Peak longitudinal strain, %	33 (14)	31 (12)	34 (14)	34 (15)	33 (14)
Total emptying fraction, %	56 (11)	56 (9)	58 (10)	57 (11)	55 (11)

Passive emptying fraction, %	25 (8)	25 (8)	25 (8)	25 (8)	23 (9)
Active emptying fraction, %	43 (11)	42 (9)	44 (11)	44 (12)	41 (12)
Structure, mean (SD)					
Left atrium					
Maximum volume, ml	63 (20)	62 (18)	61 (19)	63 (23)	66 (21)
Minimum volume, ml	28 (13)	28 (11)	26 (12)	28 (14)	31 (14)
Left ventricle					
Mass, g	122 (33)	121 (32)	123 (33)	122 (35)	121 (33)
End-diastolic volume, ml	121 (30)	118 (27)	121 (30)	122 (31)	119 (30)

CMR: cardiovascular magnetic resonance; PAC: premature atrial contraction; BMI: body mass index; BP: blood pressure; NT-proBNP: N-terminal pro-B-type natriuretic peptide; eGFR: estimated glomerular filtration rate; AF: atrial fibrillation

* Total N of participants included in the analysis ranged from 1091 to 1113 for measures of left atrial function and structure, and was 1147 for measures of left ventricular structure.

Table S5. Adjusted association of demographic and clinical characteristics with average runs of SVT per day in 1148 participants, from multivariable linear regression.

Characteristic	Model 1*		Model 2†	
	Ratio of geometric means	95% Confidence Interval	Ratio of geometric means	95% Confidence Interval
Age, per 10 yr	1.69	1.52, 1.89	1.43	1.23, 1.67
Male vs. female	0.89	0.74, 1.07	0.98	0.82, 1.18
Race/ethnicity				
White	Reference		Reference	
Chinese	0.57	0.44, 0.74	0.63	0.47, 0.83
African American	0.60	0.47, 0.78	0.62	0.48, 0.82
Hispanic	0.64	0.51, 0.82	0.70	0.55, 0.90
BMI, per 5 kg/m^2			1.00	0.90, 1.12
Diabetes			0.77	0.59, 1.01
Current smoking			1.11	0.80, 1.55
Antihypertensive medication			1.05	0.87, 1.26
Systolic BP, per 20 mm Hg			1.19	1.07, 1.33
NT-proBNP, per 2-fold increment			1.20	1.10, 1.31
eGFR, per 20 mL/min/1.73 m^2			1.11	0.94, 1.30
History of clinical AF			3.64	1.84, 7.20

PAC: premature atrial contraction; BMI: body mass index; BP: blood pressure; NT-proBNP: N-terminal pro-B-type natriuretic peptide; eGFR: estimated glomerular filtration rate; AF: atrial fibrillation

* Model 1 includes only sociodemographic variables: age, sex, and race/ethnicity

† Model 2 includes sociodemographic variables and all clinical variables in the left column

Table S6. Adjusted association of left atrial function and of left atrial and left ventricular structure with average runs of SVT/day from multivariable linear regression*

CMR measure	Model 1†		Model 2‡	
	Ratio of geometric means	95% Confidence Interval	Ratio of geometric means	95% Confidence Interval
Left atrial function, per 10%				
Peak longitudinal strain	1.05	0.98, 1.13	1.06	0.99, 1.13
Total emptying fraction	0.91	0.82, 1.01	0.97	0.87, 1.07
Passive emptying fraction	0.95	0.83, 1.08	0.99	0.87, 1.12
Active emptying fraction	0.92	0.84, 1.01	0.97	0.89, 1.06
Structure, per 25%				
Left atrium				
Maximum volume	1.11	1.03, 1.20	1.04	0.96, 1.12
Minimum volume	1.08	1.03, 1.13	1.03	0.98, 1.08
Left ventricle				
Mass	1.17	1.02, 1.35	1.04	0.89, 1.20
End-diastolic volume	1.17	1.04, 1.32	1.07	0.95, 1.21

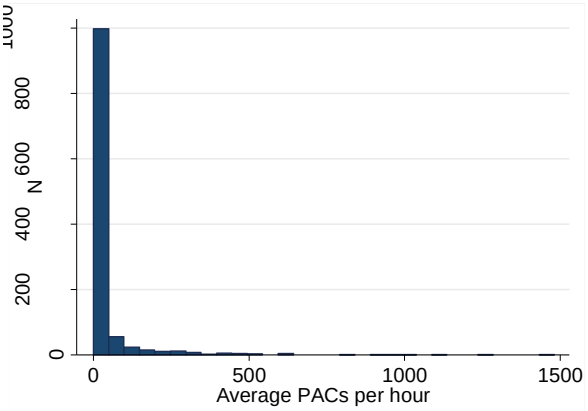
* N of participants included in the analysis ranged from 1091 to 1113 for analyses of left atrial function and structure, and was 1147 for analyses of left ventricular structure.

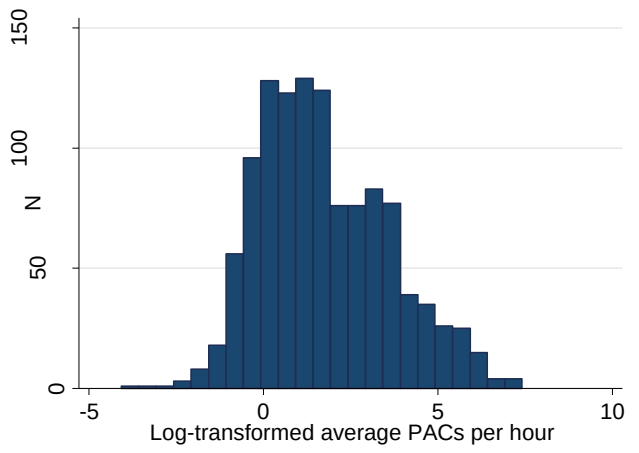
† Model 1: Left atrial function measures are adjusted for age, sex, race, height and weight. Structure measures (volume and mass) are indexed to height and weight by sex and adjusted for age and race.

‡ Model 2: Left atrial function measures are adjusted as in Model 1 and are further adjusted for: diabetes, current smoking, use of antihypertensive medication, systolic blood pressure, history of clinically recognized AF, NT-proBNP, estimated glomerular filtration rate, and history of clinically-recognized AF. Structure measures (volumes and mass) are indexed and adjusted as in Model 1, and are further adjusted for the Model 2 clinical characteristics.

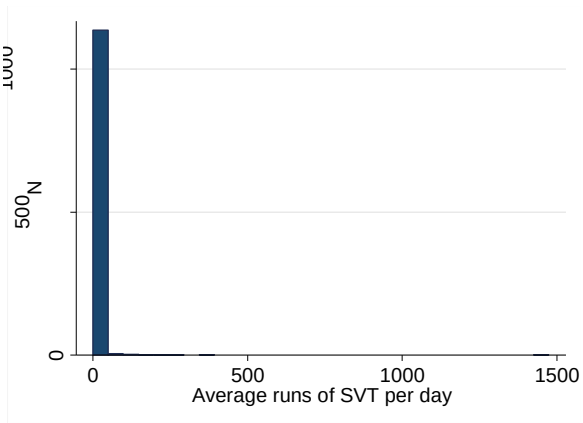
Figure S1. Distributions of (A) average and log-transformed average premature atrial contractions (PACs) per hour; (B) average and log-transformed average runs of supraventricular tachycardia (SVT) per day.

A.





B.



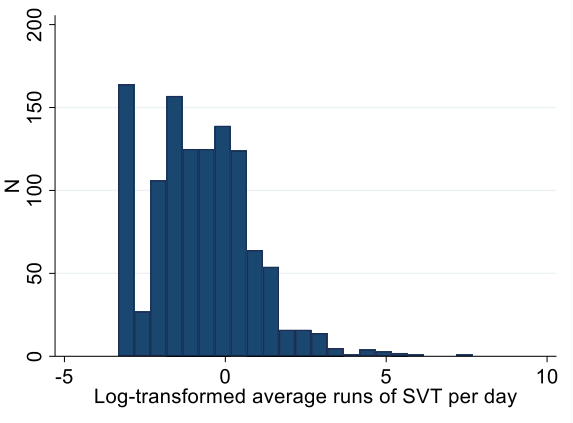


Figure S2. Scatterplot of log (average PACs per hour) by log (average runs of SVT per day).