Supplemental Online Content

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eTable 1. Demographics and cardiac magnetic resonance imaging findings, by ibrutinib and general cancer status, respectively

eTable 2. Univariable predictors for subsequent arrhythmic (AF or VA) events, by cardiac magnetic resonance imaging parameter

This supplemental material has been provided by the authors to give readers additional information about their work.

eTable 1. Demographics and cardiac magnetic resonance imaging findings, by ibrutinib and general cancer status, respectively

Variable	Ibrutinib (n=33)	Cancer Controls (n=42)[a]	General Population [b] (n=1,231)	*P*-value[c]	*P*-value[d]
Age, mean (SD)	64.6 (10.0)	60.5 (10.1)	67 (9)	0.192	0.345
BMI (kg/m^2), mean (SD)	29.2 (5.9)	29.8 (7.3)	28 (5.5)	0.369	0.535
Male Gender	23 (69.7)	9 (21.4)	606 (49.2)	<0.001	0.043
Cancer Status, n (%)					
Prior Cancer Treatment	20 (60.6)	28 (75.7)	NA	0.44	-
Prior Anthracycline	1 (3.0)	2 (5.4)	NA	0.757	-
Prior Radiotherapy	3 (9.1)	2 (5.4)	NA	0.409	-
Traditional CVD Risk Factors, n (%)[e]					
Prior HTN	9 (27.3)	18 (54.5)	641 (52.1)	0.069	0.021
Prior DM	4 (12.1)	3 (8.1)	185 (15.0)	0.69	0.575
Prior CAD	4 (12.1)	2 (5.4)	NA	0.394	-
Prior MI	1 (3.0)	2 (5.4)	NA	0.757	-
Prior Myocarditis	0 (0.0)	1 (2.7)	NA	1.0	-
Prior CHF	1 (3.0)	1 (2.7)	NA	1.0	-
Prior AF or VAs	1 (3.0)	5 (38.5)	NA	0.152	-
Prior Valvular Disease	2 (6.1)	1 (2.7)	NA	0.387	-
Current Smoking	1 (3.0)	5 (13.5)	84 (6.8)	0.189	0.522
Presenting arrhythmias on ibrutinib	23 (69.7)	NA	NA	-	-
Prior AF Therapies, n (%)					
Beta-blocker	19 (57.6)	8 (22.2)	NA	0.002	-
Prior Ablation	0 (0.0)	1 (7.7)	NA	0.152	-
CMR Findings, mean (SD)					
LVEF (%)	56.2 (11.5)	54.6 (13.1)	62.2 (6.45)	0.900	0.004
LVEDVi (mL/m2)	78.4 (19.3)	69.9 (18.4)	64.9 (12.9)	0.18	0.001
LA size (cm^3)	25.9 (6.8)	24.7 (7.5)	NA	0.400	-
RVEF (%)	53.7 (8.5)	50.8 (14.6)	NA	0.273	-
LGE+, n (%)	17 (54.8)	5 (12.5)	97 (7.9)[f]	<0.001	<0.001
Native T1 (ms)	1033.7 (48.2)	994.5 (70.0)[g]	977.1 (41.6)	-	<0.001
Max T2 (ms)	61.5 (4.8)	53.7 (4.3)	NA	<0.001	-

Abbreviations: AF, atrial fibrillation; CAD, coronary artery disease; CMR, cardiac magnetic resonance imaging; CVD, cardiovascular disease; DM, diabetes mellitus; HTN, hypertension; LA, left atrial; LGE, late gadolinium enhancement; LVEDV, left ventricular end diastolic volume; LVEF, left ventricular ejection fraction; LVESV, left ventricular end systolic volume; MS, milliseconds; RVEF, right ventricular ejection fraction; VA, ventricular arrhythmia. MACE includes atrial fibrillation, ventricular arrhythmias, congestive heart failure, or sudden cardiac death. [a]Consecutive cancer patients (≥ 50 years of age) of similar cancer and traditional cardiac risk not treated with ibrutinib, imaged on the same CMR scanner. [b]Derived from a similar aged contemporary cohort, free of clinical CVD. [c]Comparison of ibrutinib users to non-ibrutinib treated cancer patients, using t-tests and fishers exact tests. [d]Comparison of ibrutinib users to non-ibrutinib treated general population cohort of similar age and traditional CVD risk, using z-tests. [e]Present before ibrutinib initiation. [f]Derived from (32); within the same population. [g]T1 maps were not consistently available.

eTable 2. Univariable predictors for subsequent arrhythmic (AF or VA) events, by cardiac

magnetic resonance imaging parameter

Parameter	Hazard Ratio	95% Confidence Interval	*P*-value
LGE	5.28	(1.15-24.29)	**0.032**
Native T1, per 10 ms	1.15	(1.01-1.30)	**0.032**
ECV, per 1%	1.12	(0.96-1.32)	0.153
Max T2, per 1 ms	1.15	(1.02-1.30)	**0.012**

Abbreviations: AF, atrial fibrillation; CI, confidence interval; ECV, extracellular volume fraction; LGE, late gadolinium enhancement; VA, ventricular arrhythmias.