

SUPPLEMENTAL MATERIAL

Table S1. Baseline Characteristics of the Study Population by Study Group After Application of Inverse Probability Weights.

Characteristic	MRA (n = 2067)	No MRA (n = 14,781)	Standardized Difference, %	<i>P</i> Value
Age, mean (SD), y	77.9 (7.8)	77.6 (7.6)	4.0	.09
Age group			0.7	.76
65-79 y	58.3	58.7		
≥ 80 y	41.7	41.3		
Men	51.2	50.6	1.1	.64
Race			1.7	.78
African American	11.1	11.4		
White	75.0	74.3		
Other/unknown	13.8	14.3		
Disease state				
Diabetes mellitus	82.4	82.7	1.0	.68
Chronic renal insufficiency	33.9	35.0	2.4	.30
Medical history				
Anemia	22.7	22.1	1.3	.57
Atrial fibrillation	37.3	35.6	3.5	.14
Chronic obstructive pulmonary disease	30.6	31.8	2.6	.28
Depression	9.5	9.7	0.5	.82
Heart failure with ischemic etiology			2.2	.63
No	43.3	44.3		
Yes	50.0	49.5		
Missing	6.7	6.3		
Hyperlipidemia	57.3	57.6	0.6	.81
Hypertension	82.4	83.2	2.1	.36
Implantable cardioverter-defibrillator	8.8	8.9	0.3	.90
Pacemaker	17.7	17.8	0.2	.92
Peripheral vascular disease	16.8	16.4	1.3	.58
Smoker in the past year	9.5	9.7	0.4	.87
Vital signs at admission				
Heart rate, mean (SD), bpm	81.5 (18.4)	82.1 (18.9)	3.1	.19
Respiratory rate ≥ 30 breaths/min, No. (%)	5.9	6.0	0.7	.77
Systolic blood pressure, mean (SD), mm Hg	145.4 (31.0)	145.1 (29.6)	1.0	.67
Tests at admission/discharge				
Reduced ejection fraction at admission*	39.1	39.8	1.6	.50
Serum Creatinine, mean (SD), mg/dL	1.8 (1.1)	1.8 (1.2)	1.4	.57
Serum Potassium, mean (SD), mEq/L	4.1 (0.5)	4.1 (0.5)	1.3	.57
Serum urea nitrogen, mean (SD), mg/dL	35.2 (18.8)	34.5 (17.9)	4.0	.08
Discharge year			3.5	.97
2005	4.0	3.4		
2006	14.0	14.2		
2007	13.0	12.6		
2008	11.0	11.0		
2009	11.4	11.4		
2010	12.6	12.8		
2011	12.8	12.8		
2012	10.7	10.7		
2013	10.5	11.1		

*Reduced ejection fraction is defined as documentation of a left ventricular ejection fraction of 35% or less, or a qualitative assessment of moderate or severe left ventricular systolic dysfunction.

Table S2. Associations Between Baseline Characteristics and 3-Year Outcomes Among Patients With Heart Failure With Preserved Ejection Fraction.

Characteristic	Hospitalization for Hyperkalemia (Any Position)		Hospitalization for Acute Renal Insufficiency (Any Position)	
	Adjusted HR (95% CI)	<i>P</i> Value	Adjusted HR (95% CI)	<i>P</i> Value
Age, per 5 years	1.05 (0.92-1.19)	.46	0.98 (0.90-1.07)	.68
Women	1.84 (1.28-2.64)	.001	1.28 (1.05-1.56)	.01
Race				
African American	1.43 (0.85-2.40)	.18	1.00 (0.72-1.39)	.99
White	1.00 [Reference]		1.00 [Reference]	
Other/unknown	0.93 (0.51-1.72)	.83	0.90 (0.64-1.27)	.55
Medical History				
Diabetes mellitus	1.27 (0.61-2.62)	.52	1.06 (0.75-1.50)	.72
Anemia	1.10 (0.72-1.69)	.67	1.02 (0.74-1.38)	.92
Atrial fibrillation	1.28 (0.84-1.95)	.26	1.28 (1.05-1.57)	.01
Chronic obstructive pulmonary disease	1.23 (0.81-1.87)	.32	1.42 (1.18-1.71)	<.001
Depression	1.09 (0.61-1.94)	.77	1.16 (0.85-1.59)	.34
Heart failure with ischemic etiology	1.43 (0.93-2.19)	.10	1.03 (0.84-1.27)	.77
Hyperlipidemia	0.91 (0.58-1.42)	.68	1.06 (0.85-1.34)	.60
Hypertension	0.96 (0.56-1.65)	.89	0.97 (0.73-1.28)	.81
Implantable cardioverter-defibrillator	2.47 (1.05-5.81)	.04	1.33 (0.88-2.03)	.18
Pacemaker	0.71 (0.42-1.21)	.21	0.83 (0.63-1.09)	.17
Peripheral vascular disease	0.93 (0.54-1.58)	.78	1.21 (0.91-1.62)	.18
Smoker in the past year	0.98 (0.49-1.94)	.95	1.34 (0.98-1.84)	.07
Vital signs				
Heart rate	0.97 (0.92-1.02)	.25	0.96 (0.93-0.99)	.01
Respiratory rate \geq 30 breaths/min	2.00 (0.90-4.44)	.09	1.10 (0.62-1.92)	.75
Systolic blood pressure	1.04 (0.97-1.10)	.29	0.99 (0.94-1.03)	.57
Laboratory tests				
Serum creatinine	1.37 (1.07-1.76)	.01	1.22 (1.03-1.46)	.02
Serum potassium	1.53 (1.02-2.30)	.04	1.13 (0.88-1.46)	.34
Serum urea nitrogen	1.00 (0.99-1.01)	.87	1.01 (1.01-1.02)	<.001

Table S3. Associations Between Baseline Characteristics and 3-Year Outcomes Among Patients With Heart Failure With Reduced Ejection Fraction

Characteristic	Hospitalization for Hyperkalemia (Any Position)		Hospitalization for Acute Renal Insufficiency (Any Position)	
	Adjusted HR (95% CI)	<i>P</i> Value	Adjusted HR (95% CI)	<i>P</i> Value
Age, per 5 years	1.09 (0.96-1.23)	.19	1.08 (1.00-1.16)	.04
Women	1.47 (1.10-1.95)	.008	0.95 (0.76-1.19)	.66
Race				
African American	0.64 (0.39-1.06)	.08	0.97 (0.71-1.32)	.83
White	1.00 [Reference]		1.00 [Reference]	
Other/unknown	0.72 (0.39-1.32)	.28	0.78 (0.59-1.03)	.09
Medical History				
Diabetes mellitus	0.74 (0.49-1.12)	.16	0.80 (0.61-1.05)	.11
Anemia	1.09 (0.72-1.66)	.68	1.06 (0.85-1.32)	.63
Atrial fibrillation	1.14 (0.83-1.56)	.43	1.12 (0.92-1.36)	.25
Chronic obstructive pulmonary disease	1.18 (0.87-1.60)	.30	1.20 (1.01-1.44)	.04
Depression	0.93 (0.53-1.65)	.81	1.33 (1.04-1.70)	.02
Heart failure with ischemic etiology	1.42 (1.00-2.01)	.05	1.18 (1.03-1.36)	.02
Hyperlipidemia	0.94 (0.64-1.39)	.77	1.00 (0.81-1.25)	.97
Hypertension	1.12 (0.72-1.76)	.61	1.11 (0.88-1.39)	.39
Implantable cardioverter-defibrillator	1.47 (0.98-2.19)	.06	1.42 (1.15-1.75)	.001
Pacemaker	0.72 (0.48-1.08)	.11	0.90 (0.72-1.13)	.38
Peripheral vascular disease	1.29 (0.82-2.04)	.27	1.16 (0.89-1.50)	.27
Smoker in the past year	1.32 (0.78-2.24)	.30	1.05 (0.77-1.42)	.77
Vital signs				
Heart rate	1.01 (0.96-1.06)	.72	0.97 (0.95-0.99)	.006
Respiratory rate \geq 30 breaths/min	0.91 (0.43-1.95)	.82	0.92 (0.57-1.51)	.75
Systolic blood pressure	0.97 (0.91-1.03)	.31	1.00 (0.96-1.04)	.92
Laboratory tests				
Serum creatinine	1.19 (0.99-1.44)	.06	1.12 (0.97-1.30)	.11
Serum potassium	1.33 (0.93-1.90)	.12	1.03 (0.85-1.25)	.75
Serum urea nitrogen	1.01 (1.00-1.02)	.03	1.02 (1.01-1.02)	<.001