

Supplementary Appendix

Supplemental Table 1: Baseline demographics

	Protocolized Group (N=42)		Provider Directed Dosing (N=94)
	Isosorbide dinitrate/hydralazine (N=33)	Captopril (N=9)	
Age, years	60.9 ± 13.8	52.7 ± 14.0	58.7 ± 14.1
Provider individualized dosing			
Isosorbide dinitrate-hydralazine	NA	NA	25 (26.6)
ARB			22 (23.4)
ARNI			14 (14.9)
Hydralazine monotherapy			11 (11.7)
ACEi			10 (10.6)
Other			12 (12.8)
Female	8 (24.2)	1 (11.1)	18 (19.1)
BMI	29.5 ± 8.2	29.0 ± 9.1	30.8 ± 6.8
Race			
Black or AA	9 (27.3)	1 (11.1)	29 (30.9)
White or Caucasian	21 (63.6)	8 (88.9)	58 (61.7)
Other	3 (9.1)	0 (0)	7 (7.4)
LVEF, %	26.2 ± 15.4	23.9 ± 16.6	25.7 ± 15.8
SCr, mg/dL	1.9 ± 0.9	1.1 ± 0.3	1.4 ± 0.6
Potassium, mEq/L	4.2 [4.0 – 4.5]	4.4 [4.4 – 4.8]	4.0 [3.8 – 4.4]
Sodium, mEq/L	135 [133 – 138]	138 [135 – 139]	137 [134 – 139]
BNP, pg/mL	1178 [857 – 2890]	930.5 [781 – 1080]	790 [383 – 1470]
Missing data	20 (60.6)	7 (77.8)	53 (56.4)
NTproBNP, pg/mL	8540 [4125 – 19900]	6100 [3940 – 8010]	5465 [2650 – 12700]
Missing data	25 (75.8)	6 (66.7)	68 (72.3)
Hypertension	23 (69.7)	3 (33.3)	60 (63.8)
Chronic Kidney Disease	20 (60.6)	2 (22.2)	43 (45.7)
History of stroke	2 (6.1)	0 (0)	5 (5.3)
Atrial Fibrillation	21 (63.6)	4 (44.4)	45 (47.9)
Admission SBP, mmHg	112.8 ± 19.1	124.8 ± 22.1	120.8 ± 20.7
Admission DBP, mmHg	74.1 ± 14.7	87.2 ± 13.4	79.4 ± 16.3
PTA Cardiovascular Medications			
ACEi/ARB	1 (3.0)	0 (0)	12 (12.8)
ARNI	2 (6.1)	1 (11.1)	9 (9.6)
Beta blockers	9 (27.3)	1 (11.1)	30 (31.9)
MRA	5 (15.2)	2 (22.2)	19 (20.2)
SGLT2i	1 (3.0)	2 (22.2)	17 (18.1)
Hydralazine	2 (6.1)	0 (0)	7 (7.4)
Nitrates	2 (6.1)	0 (0)	4 (4.3)
Oral vasodilator prior to SNP infusion during hospitalization	0 (0)	1 (11.1)	23 (24.5)
Hemodynamics at SNP Start			
CVP	14.7 ± 9.1	11.1 ± 3.2	14.1 ± 7.4
PAP, systolic	54.6 ± 13.5	49.1 ± 16.0	54.5 ± 17.9
PAP, diastolic	27.3 ± 7.9	23.8 ± 6.7	26.1 ± 9.7

SVR	1784 ± 735.4	1762.4 ± 654.9	1841.8 ± 741.3
PCWP	25.6 ± 8.4	20.9 ± 4.9	25.0 ± 9.4
CI	1.8 ± 0.6	1.8 ± 0.5	1.8 ± 0.6

Supplemental Table 1. Data presented as mean ± standard deviation, median [interquartile range], or n (%). AA, African American; BNP, B-type natriuretic peptide; ACEi, angiotensin converting enzyme inhibitors; ARB, angiotensin receptor blockers; ARNI, angiotensin receptor/neprilysin inhibitor; BMI, body mass index; CI, cardiac index, in L/min/m²; CVP, central venous pressure, in mmHg; DBP, diastolic blood pressure, in mmHg; LVEF, left ventricular ejection fraction; NTproBNP, N-terminal pro B-type natriuretic peptide; PAP, pulmonary artery pressure, in mmHg; PCWP, pulmonary capillary wedge pressure, in mmHg; PTA, prior to admission; SBP, systolic blood pressure, in mmHg; SCr, serum creatinine; SGLT2i, sodium-glucose transport-2 inhibitors; SNP, sodium nitroprusside; SVR, systemic vascular resistance, in dynes-sec/cm⁵; MRA, mineralocorticoid receptor antagonist.

Supplemental Table 2: Hospital Discharge GDMT

	Protocolized Group (N=42)		Provider Directed Dosing (N=94)	p-value
	Isosorbide dinitrate/hydralazine (N=33)	Captopril (N=9)		
Hospital discharge GDMT				
ACEi/ARB	8 (24.2)	3 (33.3)	32 (34.0)	0.576
ARNI	7 (21.2)	1 (11.1)	26 (27.7)	0.562
Beta Blocker	20 (60.6)	3 (33.3)	49 (52.1)	0.353
MRA	11 (33.3)	1 (11.1)	34 (36.2)	0.347
SGLT2i	6 (18.2)	1 (11.1)	22 (23.4)	0.724
Hydralazine	16 (48.5)	1 (11.1)	26 (27.7)	0.032
Nitrates	16 (48.5)	0 (0)	26 (27.7)	0.006
Number of GDMT at discharge, n (%)				0.341
0	9 (27.3)	4 (44.4)	15 (16.0)	
1	6 (18.2)	3 (33.3)	28 (29.8)	
2	11 (33.3)	1 (11.1)	26 (27.7)	
3	4 (12.1)	0 (0)	17 (18.1)	
4	3 (9.1)	1 (11.1)	8 (8.5)	

Supplemental Table 3: Average PO vasodilator dose at SNP discontinuation

	Protocolized Group (N=42)	Provider Directed Dosing (N=94)	p-value
Hydralazine	151.9 ± 93.1	119.3 ± 88.1	0.094
Nitrates	117.1 ± 62.7	59.1 ± 36.4	<0.001
Enalapril equivalent	6.5 ± 2.6	6.9 ± 5.8	0.714
Sacubitril/valsartan	NA	40.7 ± 26.9 / 43.2 ± 28.3	NA

* ACEi and ARB daily doses are converted to enalapril equivalents as per the definitions used in the PARADIGM-HF trial. For this protocol, doses of other ACEIs considered to be equivalent to enalapril 10 mg/d include captopril 100 mg/d, cilazapril 2.5 mg/d, fosinopril 20 mg/d, lisinopril 10 mg/d, moexipril 7.5 mg/d, perindopril 4 mg/d, quinapril 20 mg/d, ramipril 5 mg/d, trandolapril 2 mg/d, and zofenopril 30 mg/d. ARBs considered to be equivalent

to enalapril 10 mg/d include candesartan 16 mg/d, eprosartan 400 mg/d, irbesartan 150 mg/d, losartan 50 mg/d, olmesartan 10 mg/d, telmisartan 40 mg/d, and valsartan 160 mg/d.

Supplemental Table 4: Median doses at discharge

	Protocolized Group (N=42)	Provider Directed Dosing (N=94)
Median daily doses at discharge, mg*		
ACEi	15	18.7
ARB	9.8	9.2
ARNI, n		
12-13	1	5
24-26	6	12
49-51	1	4
97-103	0	5
Beta blockers		
Bisoprolol	0	10
Carvedilol	36.6	33.6
Metoprolol succinate	17.0	17.1
MRA	19.8	19.4
Hydralazine	77.5	76.5
Nitrates	28.7	32.2

* ACEi and ARB daily doses are converted to enalapril equivalents as per the definitions used in the PARADIGM-HF trial. For this protocol, doses of other ACEIs considered to be equivalent to enalapril 10 mg/d include captopril 100 mg/d, cilazapril 2.5 mg/d, fosinopril 20 mg/d, lisinopril 10 mg/d, moexipril 7.5 mg/d, perindopril 4 mg/d, quinapril 20 mg/d, ramipril 5 mg/d, trandolapril 2 mg/d, and zofenopril 30 mg/d. ARBs considered to be equivalent to enalapril 10 mg/d include candesartan 16 mg/d, eprosartan 400 mg/d, irbesartan 150 mg/d, losartan 50 mg/d, olmesartan 10 mg/d, telmisartan 40 mg/d, and valsartan 160 mg/d.