Long-Term Follow-up of Participants with Heart Failure in the Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT)

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Supplemental Table 1. Cause-Specific Deaths of HF Cases versus Non-HF Cases

	Chlorthalidone		Amlodipine		Lisinopril	
	HF **n (%)**	**No HF** **n (%)**	**HF** **n (%)**	**No HF** **n (%)**	**HF** **n (%)**	**No HF** **n (%)**
Incident In-Trial HF Deaths	87		65		44	
Deaths In-Trial	257	1990	186	1088	184	1148
CVD	164 (63.4)	804 (40.4)	114 (61.3)	462 (42.5)	112 (60.9)	486 (42.3)
Non-CVD	82 (31.9)	1052 (52.9)	66 (35.5)	537 (49.4)	65 (35.3)	579 (52.4)
Unknown Cause	11 (4.3)	134 (6.7)	6 (3.2)	89 (8.2)	7 (3.8)	83 (7.2)
Deaths Post-Trial	211	2727	178	1580	136	1542
CVD	123 (58.3)	1140 (41.8)	91 (51.1)	647 (40.9)	69 (50.7)	626 (40.6)
Non-CVD	85 (40.3)	1540 (56.5)	86 (48.3)	899 (56.9)	66 (48.5)	885 (57.4)
Unknown Cause	3 (1.4)	47 (1.7)	1 (0.6)	34 (2.2)	1 (0.7)	31 (2.0)
Total Deaths	555	4717	429	2668	364	260
CVD	287 (51.7)	1944 (41.2)	205 (47.8)	1109 (41.6)	181 (49.7)	1112 (41.3)
Non-CVD	167 (30.1)	2592 (55.0)	152 (35.4)	1436 (53.8)	131 (36.0)	1464 (54.4)
Unknown Cause	14 (2.5)	181 (3.8)	7 (1.6)	123 (4.6)	8 (2.2)	114 (4.2)

HF=heart failure; CVD=**cardiovascular** disease

Supplemental Table 2.Time-Dependent Cox Regression Analyses of Mortality Outcomes After Hospitalized Heart Failure In-Trial and Post-Trial.

	HR (95% CI)					
	A vs C			L vs C		
	In-Trial	Post-Trial	*P* value trt*trial phase inter-action	In-Trial	Post-Trial	*P* value trt*trial phase inter-action
All-cause Mortality	0.90 (0.73-1.11)	0.88 (0.72-1.08)	0.888	1.04 (0.84-1.28)	0.90 (0.72-1.12)	0.362
• adjusted*	0.93 (0.74-1.16)	0.98 (0.78-1.22)	0.752	1.07 (0.84-1.35)	1.04 (0.82-1.32)	0.873
CVD Mortality	0.86 (0.66-1.12)	0.79 (0.60-1.04)	0.653	0.94 (0.72-1.24)	0.82 (0.61-1.10)	0.502
• adjusted*	0.92 (0.69-1.23)	0.92 (0.68-1.24)	0.987	0.96 (0.70-1.30)	0.98 (0.71-1.37)	0.903
Heart Failure	0.68 (0.40-1.17)	0.59 (0.27-1.28)	0.766	1.06 (0.64-1.75)	0.65 (0.28-1.48)	0.322
• adjusted*	0.63 (0.34-1.67)	0.75 (0.33-1.68)	0.742	1.27 (0.72-2.22)	0.86 (0.35-2.12)	0.468
Other CVD Mortality	0.93 (0.69-1.26)	0.83 (0.62-1.11)	0.573	0.91 (0.66-1.26)	0.84 (0.61-1.16)	0.746
• adjusted*	1.02 (0.74-1.42)	0.89 (0.65-1.23)	0.764	0.85 (0.59-1.24)	0.98 (0.69-1.39)	0.605
Non-CVD Mortality	0.99 (0.69-1.41)	1.06 (0.79-1.44)	0.753	1.20 (0.84-1.72)	1.06 (0.77-1.47)	0.615
• adjusted*	1.03 (0.69-1.52)	1.09 (0.78-1.52)	0.812	1.28 (0.86-1.91)	1.20 (0.84-1.71)	0.806

* Adjusted for baseline characteristics of age, race, gender, smoking, education, treatment of hypertension, systolic blood pressure, diastolic blood pressure, pulse, type II diabetes, LVH by ECG, history of coronary heart disease, BMI, eGFR, and time to heart failure.

A=amlodipine; C=chlorthalidone; L=lisinopril; CVD=cardiovascular disease; trt=treatment

Supplemental Table 3. Time-Dependent Cox Regression Analyses of Mortality Outcomes After Hospitalized Heart Failure In-Trial and Post-Trial by Ejection Fraction.

		HR (95% CI)					
		A vs C			L vs C		
		In-Trial	**Post-Trial**	*P* trt*trial phase inter-action	**In-Trial**	**Post-Trial**	*P* trt*trial phase inter-action
All-cause Mortality							
	PEF	0.58 (0.33-1.00)	0.84 (0.55-1.30)	0.288	0.88 (0.54-1.44)	0.96 (0.60-1.52)	0.817
	REF	0.96 (0.65-1.41)	0.98 (0.65-1.48)	0.923	0.89 (0.56-1.37)	1.11 (0.72-1.73)	0.486
• adjusted*							
	PEF	0.68 (0.39-1.19)	0.92 (0.60-1.42)	0.408	1.15 (0.66-2.03)	0.81 (0.48-1.36)	0.348
	REF	0.96 (0.65-1.43)	0.96 (0.64-1.46)	0.988	0.94 (0.61-1.43)	1.13 (0.72-1.76)	0.559
CV Mortality							
	PEF	0.85 (0.40-1.81)	0.66(0.37-1.18)	0.594	0.72 (0.33-1.59)	0.90 (0.49-1.64)	0.667
	REF	0.97 (0.61-1.56)	0.70 (0.39-1.23)	0.379	0.83 (0.49-1.42)	0.95 (0.53-1.71)	0.740
• adjusted*							
	PEF	1.08 (0.50-2.33)	0.74 (0.41-1.34)	0.448	0.78 (0.35-1.74)	0.96 (0.52-1.76)	0.689
	REF	0.98 (0.61-1.58)	0.68 (0.38-1.22)	0.338	0.87 (0.51-1.48)	0.93 (0.52-1.69)	0.870
Heart Failure							
	PEF	0.36 (0.07-1.88)	0.51 (0.05-5.64)	0.826	0.39 (0.08-2.01)	1.45 (0.20-10.38)	0.312
	REF	0.92 (0.37-2.30)	0.71 (0.06-7.96)	0.784	0.84 (0.31-2.28)	1.20 (0.11-13.20)	0.787
• adjusted*							
	PEF	0.42 (0.08-2.21)	0.64 (0.06-7.20)	0.779	0.48 (0.09-2.48)	1.52 (0.21-11.05)	0.676
	REF	0.94 (0.37-2.36)	0.69 (0.06-7.79)	0.812	0.94 (0.34-2.58)	1.35 (0.12-15.05)	0.785
Other CVD Mortality							
	PEF	1.12 (0.46-2.71)	0.66 (0.36-1.20)	0.338	0.90 (0.36-2.26)	0.85 (0.45-1.61)	0.928
	REF	1.10 (0.63-1.91)	0.63 (0.35-1.14)	0.185	0.91 (0.48-1.73)	0.84 (0.47-1.50)	0.841
• adjusted*							
	PEF	1.45 (0.59-3.56)	0.75 (0.41-1.38)	0.230	0.95 (0.37-2.40)	0.91 (0.48-1.72)	0.938
	REF	0.99 (0.57-1.73)	0.70 (0.39-1.26)	0.397	0.83 (0.44-1.55)	0.94 (0.56-1.72)	0.777
Non-CVD Mortality							
	PEF	0.45 (0.19-1.04)	1.31 (0.67-2.59)	0.052	1.09 (0.56-2.11)	1.19 (0.56-2.52)	0.858
	REF	0.78 (0.35-1.73)	1.40 (0.76-2.58)	0.252	1.04 (0.48-2.25)	1.28 (0.64-2.56)	0.693
• adjusted*							
	PEF	0.50 (0.21-1.17)	1.39 (0.70-2.74)	0.064	1.15 (0.59-2.24)	1.23 (0.58-2.60)	0.890
	REF	0.80 (0.36-1.77)	1.42 (0.76-2.65)	0.265	1.09 (0.50-2.36)	1.35 (0.67-2.71)	0.678

* Adjusted for baseline characteristics of age and time to HF.

Abbreviations: A=amlodipine; C=chlorthalidone; L=lisinopril; EF=ejection fraction; PEF=Preserved ejection fraction; REF=Reduced ejection fraction; CV=Cardiovascular; CVD= Cardiovascular Disease

Supplemental Table 4. Shift in Medication Status for Hospitalized HF Patients from Before to After HF Event (for patients with medication data available)*

% Shift in Medication Status from before to after HF event n, %		Assigned Treatment Group		
		Chlorthalidone HF Event (n=530)	Amlodipine HF Event (n=428)	Lisinopril HF Event (n=344)
On Any Diuretic				
	-	60, **11%**	26, **6%**	16, **5%**
	+	56, **11%**	165, **39%**	133, **39%**
On Any Calcium-Channel Blocker				
	-	30, **6%**	139, **32%**	16, **5%**
	+	59, **11%**	15, **4%**	44, **13%**
On Any ACE-Inhibitor				
	-	27, **5%**	16, **4%**	59, **17%**
	+	142, **27%**	125, **29%**	19, **6%**
On Any Alpha-Blocker				
	-	11, **2%**	8, **2%**	8, **2%**
	+	18, **3%**	11, **3%**	11, **3%**
On Atenolol				
	-	380, **72%**	45, **11%**	37, **11%**
	+	18, **3%**	16, **4%**	23, **7%**

*Medication categories are not mutually exclusive/may be on more than one medication at a visit

+ = moved on to medication; - = moved off of medication

HF=heart failure; ACE=angiotensin converting enzyme

Supplemental Figure 1. Adjusted KM curves of case fatality by HF with preserved ejection fraction (≥50) and reduced ejection fraction (<50); Population based on ALLHAT definition from the Heart Failure Validation Study*