Effects of Intensive Blood Pressure Control in Chronic Kidney Disease

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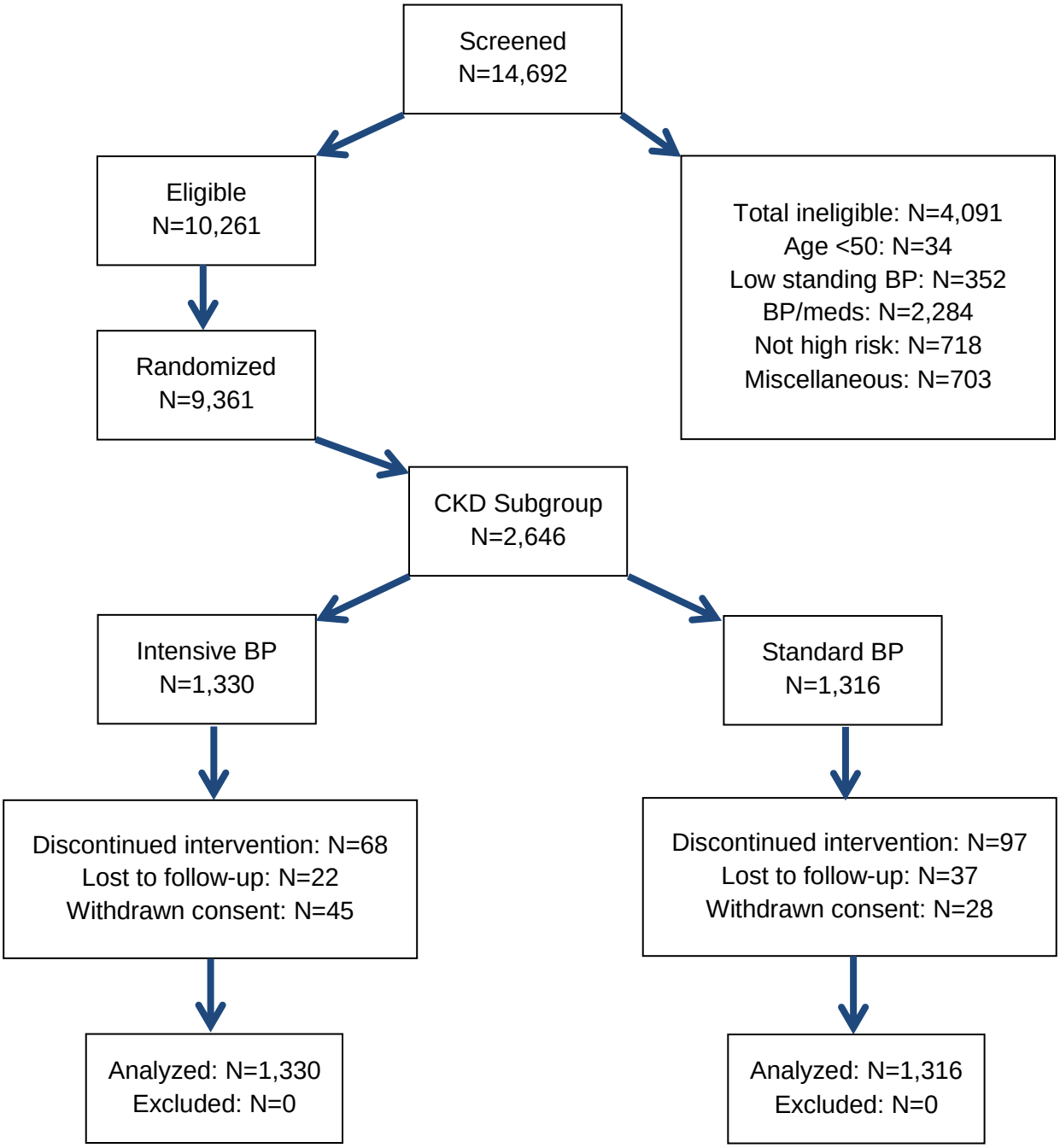
SUPPLEMENTAL MATERIALS

Supplemental Figure 1. CONSORT Diagram of Eligibility, Randomization, and Follow-up for the entire Systolic Blood Pressure Intervention Trial (SPRINT) Cohort.



Supplemental Table 1. Incidence of Primary Cardiovascular Outcome Stratified by Baseline Characteristics in SPRINT Participants with Chronic Kidney Disease.

Baseline Characteristics	Subgroup by Baseline Characteristics	Intensive Treatment			Standard Treatment			Intensive Treatment vs. Standard Treatment		Treatment × Baseline Characteristics Interaction	
		N	No. Events	% per Yr.	N	No. Events	% per Yr.	Hazard ratio (95% CI)	P-value	P-value	Adjusted P-value*
Age	<75 years	746	55	2.27	739	47	1.93	1.11 (0.74-1.66)	0.63	0.04	0.18
	≥75 years	584	57	3.24	577	84	5.05	0.64 (0.45-0.92)	0.01		
Gender	Female	537	35	1.98	521	43	2.60	0.62 (0.39-0.99)	0.05	0.31	0.70
	Male	793	77	3.19	795	88	3.59	0.87 (0.64-1.20)	0.40		
Race	Black	328	29	2.80	316	26	2.61	1.02 (0.58-1.81)	0.94	0.34	0.70
	Non-black	1002	83	2.64	1000	105	3.38	0.77 (0.57-1.03)	0.08		
Kidney function	eGFR ≤ median	660	72	3.53	664	81	3.98	0.91 (0.65-1.27)	0.58	0.47	0.86
	eGFR > median	670	40	1.87	652	50	2.42	0.78 (0.50-1.20)	0.26		
Albuminuria	ACR ≤ median	671	34	1.56	637	37	1.80	0.84 (0.51-1.36)	0.48	0.86	0.86
	ACR > median	647	77	3.91	661	92	4.59	0.81 (0.59-1.11)	0.20		

*P-value adjusted for multiple comparisons

Supplemental Table 2. All-Cause Mortality Stratified by Baseline Characteristics in SPRINT Participants with Chronic Kidney Disease.

Baseline Characteristics	Subgroup by Baseline Characteristics	Intensive Treatment			Standard Treatment			Intensive Treatment vs. Standard Treatment		Treatment × Baseline Characteristics Interaction	
		N	No. Events	% per Yr.	N	No. Events	% per Yr.	Hazard ratio (95% CI)	P-value	P-value	Adjusted P-value*
Age	<75 years	746	26	1.04	739	31	1.24	0.84 (0.49-1.44)	0.52	0.54	0.79
	≥75 years	584	44	2.38	577	64	3.57	0.64 (0.43-0.96)	0.03		
Gender	Female	537	24	1.32	521	28	1.62	0.73 (0.41-1.31)	0.30	0.79	0.79
	Male	793	46	1.81	795	67	2.60	0.71 (0.48-1.03)	0.07		
Race	Black	328	19	1.77	316	15	1.26	1.26 (0.60-2.68)	0.54	0.12	0.50
	Non-black	1002	51	1.55	1000	80	2.45	0.63 (0.44-0.90)	0.01		
Kidney function	eGFR ≤ median	660	49	2.29	664	62	2.88	0.82 (0.56-1.21)	0.32	0.39	0.79
	eGFR > median	670	21	0.95	652	33	0.62	0.62 (0.34-1.10)	0.10		
Albuminuria	ACR ≤ median	671	23	1.03	637	24	1.13	0.98 (0.54-1.77)	0.94	0.20	0.79
	ACR > median	647	47	2.26	661	70	3.29	0.66 (0.45-0.97)	0.03		

*P-value adjusted for multiple comparisons

Supplemental Table 3. Incidence of Composite of Primary Cardiovascular Outcomes and All-Cause Death Stratified by Baseline Characteristics in SPRINT Participants with Chronic Kidney Disease.

Baseline Characteristics	Subgroup by Baseline Characteristics	Intensive Treatment			Standard Treatment			Intensive Treatment vs. Standard Treatment		Treatment × Baseline Characteristics Interaction	
		N	No. Events	% per Yr.	N	No. Events	% per Yr.	Hazard ratio (95% CI)	P-value	P-value	Adjusted P-value*
Age	<75 years	746	71	2.92	739	64	2.62	1.09 (0.77-1.54)	0.64	0.04	0.21
	≥75 years	584	81	4.58	577	115	6.88	0.66 (0.49-0.90)	0.01		
Gender	Female	537	48	2.71	521	59	3.57	0.64 (0.43-0.96)	0.03	0.28	0.61
	Male	793	104	4.29	795	120	4.87	0.89 (0.68-1.16)	0.40		
Race	Black	328	38	3.66	316	34	3.41	1.00 (0.61-1.64)	0.98	0.32	0.61
	Non-black	1002	114	3.61	1000	145	4.65	0.78 (0.61-1.01)	0.06		
Kidney function	eGFR ≤ median	660	98	4.78	664	113	5.52	0.89 (0.67-1.18)	0.40	0.50	0.61
	eGFR > median	670	54	2.51	652	66	3.19	0.79 (0.54-1.16)	0.23		
Albuminuria	ACR ≤ median	671	50	2.29	637	52	2.52	0.88 (0.59-1.32)	0.54	0.61	0.61
	ACR > median	647	101	5.11	661	124	6.17	0.83 (0.63-1.09)	0.18		

*P-value adjusted for multiple comparison

Supplement Table 4. Serious Adverse Events, Conditions of Interest, and Monitored Clinical Events During the Entire Follow-up Period.

Events	Intensive Treatment (N=1330) No. (%)[a]	Standard Treatment (N=1316) No. (%)[a]	Intensive Treatment vs. Standard Treatment Hazard ratio (95% CI)	P value
Total serious adverse events[b]	627 (47.1)	640 (48.6)	0.98 (0.87-1.09)	0.67
Conditions of interest (emergency department visits or serious adverse events)				
Hypotension	51 (3.8)	38 (2.9)	1.34 (0.88-2.04)	0.17
Syncope	54 (4.1)	42 (3.2)	1.28 (0.86-1.92)	0.22
Bradycardia	37 (2.8)	40 (3.0)	0.92 (0.59-1.44)	0.71
Electrolyte abnormalities	69 (5.2)	51 (3.9)	1.35 (0.94-1.94)	0.10
Injurious fall	125 (9.4)	138 (10.5)	0.90 (0.71-1.15)	0.40
Acute renal failure[c]	114 (8.6)	78 (5.9)	1.46 (1.10-1.95)	0.01
Monitored clinical events				
Adverse clinical measures				
Serum sodium <130 mmol/l	49 (3.7)	35 (2.7)	1.39 (0.90-2.15)	0.13
Serum sodium >150 mmol/l	3 (0.2)	0 (0)	-	1.00
Serum potassium <3.0 mmol/l	30 (2.3)	16 (1.2)	1.87 (1.02-3.43)	0.04
Serum potassium >5.5 mmol/l	106 (8.0)	78 (5.9)	1.36 (1.01-1.82)	0.04
Orthostatic hypotension				
Without dizziness	301 (22.6)	302 (22.9)	0.99 (0.85-1.17)	0.94
With dizziness	24 (1.8)	23 (1.7)	1.04 (0.59-1.84)	0.89

[a]Total number of events and percentage of the cohort with those events over the entire duration of follow-up of 3.3. years.

[b]Serious adverse events were defined as events that were fatal or life-threatening, resulted in significant or persistent disability, required hospitalization or resulted in prolonged hospitalization, or medical events that the investigator judged to be a significant hazard to the participant and required medical or surgical intervention to prevent any of these.

[c]Acute renal failure was included as an event if the diagnosis was listed in the hospital discharge summary and was considered by the SPRINT Safety Officer, after reviewing medical records, to be one of the top three causes for admission or continued hospitalization. A few cases of acute renal failure were noted in the emergency-department records instead of hospitalization records.

Supplemental Table 5. Number needed to treat for benefit (NNTB) or harm (NNTH) at four years follow-up for selected outcomes and adverse events.

	NNTB/NNTH	95% CI[a]
Outcomes		
Primary (CVD) outcome	NNTB 66	NNTB 22 to ∞ to NNTH 66
CVD death	NNTB 61	NNTB 32 to ∞ to NNTH 544
All-cause death	NNTB 28	NNTB 16 to 90
Primary outcome or all-cause death	NNTB 37	NNTB 16 to ∞ to NNTH 151
Adverse events		
Acute renal failure	NNTH 35	NNTH 18 to 1239
Serum potassium <3.0 mmol/L	NNTH 131	NNTH 43 to ∞ NNTB 124
Serum potassium >5.5 mmol/L	NNTH 41	NNTH 21 to 14626

[a]95% CI was calculated as previously described.[23,24]