SUPPLEMENTAL MATERIAL

Supplemental Table 1. Selected participant characteristics by non-hypertensive, controlled hypertension, and resistant hypertension (n = 784)

Characteristics	Non-Hypertensive (n=120)	Controlled Hypertension (n=248)	Uncontrolled Hypertension (n=320)	Resistant Hypertension (n=96)
Age (years), mean ± SD	58.0 ± 10.1	64.9 ± 9.7	62.6 ± 10.9	66.9 ± 11.0
Male sex, N (%)	55 (45.8%)	67 (27.0%)	106 (33.1%)	32 (33.3%)
BMI (kg/m^2)				
mean ± SD	29.7 ± 6.5	32.5 ± 6.9	32.0 ± 6.4	32.8 ± 8.1
≥ 30	47 (39.2%)	143 (58.1%)	186 (58.5%)	58 (60.4%)
Respiratory event index 4% (events/hour)				
median ± IQR	3.1 ± 8.9	6.1 ± 11.3	6.1 ± 11.5	9.1 ± 19.2
≥ 15	16 (13.3%)	57 (23.0%)	79 (24.7%)	35 (36.5%)
Sleep apnea severity 4%, N (%)				
None (REI4% < 5)	72 (60.0%)	103 (41.5%)	141 (44.1%)	26 (27.1%)
Mild (5 ≤ REI4% < 15)	32 (26.7%)	89 (35.9%)	103 (32.2%)	37 (38.5%)
Moderate (15 ≤ REI4% < 30)	10 (8.3%)	39 (15.7%)	50 (15.6%)	18 (18.7%)
Severe (REI4% ≥ 30)	6 (5.0%)	17 (6.8%)	26 (8.1%)	15 (15.6%)
Respiratory event index 3% (events/hour)				
median ± IQR	5.7 ± 13.1	10.6 ± 14.4	10.8 ± 15.5	14.3 ± 19.7
≥ 15	33 (27.5%)	92 (37.1%)	119 (37.2%)	47 (49.0%)
Sleep apnea severity 3%, N (%)				
None (REI3% < 5)	52 (43.3%)	52 (21.0%)	74 (23.1%)	18 (18.7%)
Mild (5 ≤ REI3% < 15)	35 (29.2%)	105 (42.3%)	130 (40.6%)	33 (34.4%)
Moderate (15 ≤ REI3% < 30)	22 (18.3%)	57 (23.0%)	66 (20.6%)	22 (22.9%)
Severe (REI3% ≥ 30)	11 (9.2%)	34 (13.7%)	50 (15.6%)	23 (24.0%)
Number of antihypertensive medications, median ± IQR	0 ± 0	2.0 ± 1.0	1.0 ± 2.0	3.0 ± 1.0
Mineralocorticoid receptor antagonist use, N (%)	0 (0%)	14 (5.6%)	0 (0%)	9 (9.4%)
Systolic blood pressure (mmHg), mean ± SD	112.6 ± 9.6	114.1 ± 9.9	136.5 ± 13.3	137.7 ± 18.4
Diastolic blood pressure (mmHg), mean ± SD	69.4 ± 6.0	69.0 ± 7.4	81.9 ± 9.5	78.0 ± 12.1

SD=standard deviation; REI= respiratory event index

Supplemental Table 2. Adjusted odds ratios (95% confidence intervals) of uncontrolled or resistant hypertension versus controlled hypertension associated with moderate or severe sleep apnea (REI3%)

	Controlled (n=248)	Uncontrolled (n = 320)		Resistant (n = 96)	
	Reference	OR (95% CI)	P-value	OR (95% CI)	P-value
REI3*% ≥ 15 vs. REI3% < 15					
Model 1	1.00	1.00 (0.71-1.41)	0.98	1.63 (1.01-2.62)	0.05
Model 2	1.00	1.02 (0.70-1.50)	0.91	1.53 (0.90-2.61)	0.12
Model 3	1.00	1.00 (0.67-1.49)	1.00	1.65 (0.93-2.91)	0.09
Mild Sleep Apnea vs None (3%)					
Model 1	1.00	0.87 (0.56-1.35)	0.53	0.91 (0.47-1.76)	0.78
Model 2	1.00	0.85 (0.53-1.37)	0.51	1.18 (0.57-2.47)	0.66
Model 3	1.00	0.88 (0.53-1.46)	0.63	1.07 (0.49-2.32)	0.87
Moderate Sleep Apnea vs None (3%)					
Model 1	1.00	0.81 (0.49-1.34)	0.42	1.11 (0.54-2.31)	0.77
Model 2	1.00	0.80 (0.45-1.41)	0.44	1.33 (0.58-3.03)	0.50
Model 3	1.00	0.78 (0.43-1.41)	0.41	1.36 (0.57-3.22)	0.49
Severe Sleep Apnea vs None (3%)					
Model 1	1.00	1.03 (0.59-1.81)	0.91	1.95 (0.92-4.15)	0.08
Model 2	1.00	1.00 (0.53-1.89)	1.00	2.03 (0.84-4.90)	0.11
Model 3	1.00	1.05 (0.54-2.05)	0.89	1.94 (0.76-4.96)	0.16

*3% oxygen desaturation; Percent time in hypoxemia was standardized to a mean of 0 and standard deviation of 1; sleep apnea severity categories: <5 (unaffected); ≥5 to <15 (mild), ≥15 to <30 (moderate), and ≥30 (severe)

Model 1: Unadjusted

Model 2: Adjusted for age, sex, obese, education, smoking, and diabetes

Model 3: Adjusted for age, sex, obese, education, smoking, diabetes, depressive symptoms, perceived stress, sleep duration, and sleep efficiency

Supplemental Table 3. Adjusted odds ratios (95% confidence intervals) of uncontrolled or resistant hypertension versus controlled hypertension associated with continuous respiratory event index (REI4%), oxygen desaturation index (ODI4%), and obstructive apnea index (OAI0%)

	Controlled (n=248)	Uncontrolled (n = 320)		Resistant (n = 96)	
	Reference	OR (95% CI)	P-value	OR (95% CI)	P-value
REI4%					
Model 1	1.00	1.00 (0.99-1.02)	0.68	1.03 (1.01-1.04)	< 0.01
Model 2	1.00	1.00 (0.99-1.02)	0.64	1.02 (1.01-1.04)	< 0.01
Model 3	1.00	1.00 (0.99-1.02)	0.77	1.03 (1.01-1.05)	< 0.01
ODI4%					
Model 1	1.00	1.00 (0.99-1.02)	0.58	1.03 (1.01-1.04)	< 0.01
Model 2	1.00	1.00 (0.99-1.02)	0.58	1.03 (1.01-1.05)	< 0.01
Model 3	1.00	1.00 (0.99-1.02)	0.72	1.03 (1.01-1.05)	< 0.01
OAI0%					
Model 1	1.00	1.00 (0.98-1.03)	0.66	1.03 (1.01-1.06)	< 0.01
Model 2	1.00	1.00 (0.98-1.03)	0.73	1.03 (1.00-1.06)	0.02
Model 3	1.00	1.01 (0.98-1.03)	0.62	1.03 (1.00-1.06)	0.03

Model 1: Unadjusted

Model 2: Adjusted for age, sex, obese, education, smoking, and diabetes

Model 3: Adjusted for age, sex, obese, education, smoking, diabetes, depressive symptoms, perceived stress, sleep duration, and sleep efficiency

Supplemental Table 4. Unadjusted odds ratios (95% confidence intervals) of uncontrolled or resistant hypertension vs. controlled with sleep apnea

Variable	OR (95% CI)	P-value
REI4% ≥ 15 vs. REI4% < 15	1.26 (0.88-1.82)	0.21
Sleep Apnea (4%)		
Mild Sleep Apnea vs None (4%)	0.97 (0.58-1.39)	0.87
Moderate Sleep Apnea vs None (4%)	1.07 (0.58-1.71)	0.76
Severe Sleep Apnea vs None (4%)	1.49 (0.80-2.75)	0.21
p-trend		0.30
REI3% ≥ 15 vs. REI3% < 15	1.13 (0.81-1.56)	0.47
Sleep Apnea (3%)		
Mild Sleep Apnea vs None (3%)	0.88 (0.58-1.33)	0.54
Moderate Sleep Apnea vs None (3%)	0.87 (0.54-1.40)	0.57
Severe Sleep Apnea vs None (3%)	1.21 (0.71-2.06)	0.47
p-trend		0.55
Percent time in hypoxemia (1 SD)	1.12 (0.93-1.36)	0.22

REI=respiratory event index; Percent time in hypoxemia was standardized to a mean of 0 and standard deviation of 1