CHEST Online Supplement

Trajectories of Emergent Central Sleep Apnea During CPAP Therapy

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e-Table 1. Demographic data and device usage characteristics in different patient subgroups from the post-hoc analysis (patients with residual apnea-hypopnea index ≥15/h). P-values reported in the right-hand column of the table are those for testing the null hypothesis that all groups follow the same distribution; a p-value of <0.05 indicates that there is statistically significant difference across groups. To examine such differences further, pairwise tests between specific groups were conducted, with results shown as superscripts in the table.
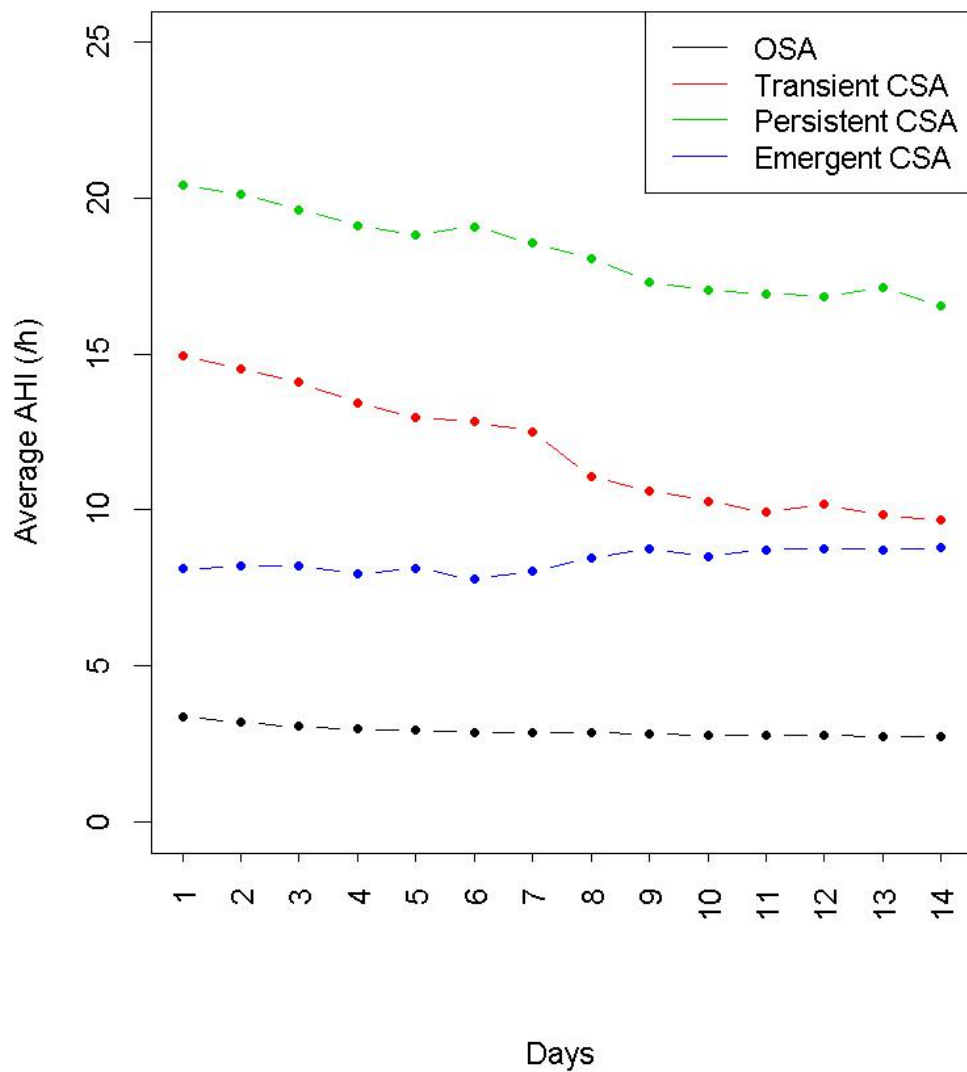
	OSA (n=128,385)	Transient CSA (n=805)	Persistent CSA (n=397)	Emergent CSA (n=336)	P-value
Age, years	$56.2\pm13.8^{a,b,c}$	$62.1\pm13.4^{a,d,e}$	$65.5\pm13.1^{b,d}$	$65.0\pm12.4^{c,e}$	<0.001
CPAP mode during first 90 days, n (%)					
Automatic pressure	$60,212$ $(46.9)^{a,b,c}$	$405 (50.3)^a$	$193 (48.6)^b$	$153 (45.5)^c$	
Fixed pressure	61,166 (47.6)	273 (33.9)	142 (35.8)	137 (40.8)	<0.001
Both	7,007 (5.5)	127 (15.8)	62 (15.6)	46 (13.7)	
Respiratory parameters in the first 90 days					
AHI, /h	$2.6\pm3.1^{a,b,c}$	$12.0\pm6.2^{a,d,e}$	$26.0\pm10.8^{b,d,f}$	$14.7\pm8.3^{c,e,f}$	<0.001
CAI, /h	$0.4\pm0.7^{a,b,c}$	$5.1\pm3.4^{a,d}$	$14.4\pm7.9^{b,d,f}$	$5.5\pm3.5^{c,f}$	<0.001
Average median pressure, cmH_2O	$9.8\pm2.7^{a,b}$	10.1 ± 2.6^a	10.1 ± 2.4^b	10.1 ± 2.6	<0.001
Average 95th percentile pressure, cmH_2O	$11.0\pm2.8^{a,b,c}$	11.6 ± 2.6^a	11.7 ± 2.7^b	11.4 ± 2.9^c	<0.001
Average median leak, L/min	$6.0\pm9.4^{a,b,c}$	$7.1\pm7.9^{a,e}$	7.6 ± 8.4^b	$8.3\pm8.6^{c,e}$	<0.001
Average 95th percentile leak, L/min	$21.6\pm18.3^{a,b,c}$	$24.8\pm17.6^{a,d,e}$	$26.9\pm17.6^{b,d}$	$27.9\pm18.4^{c,e}$	<0.001

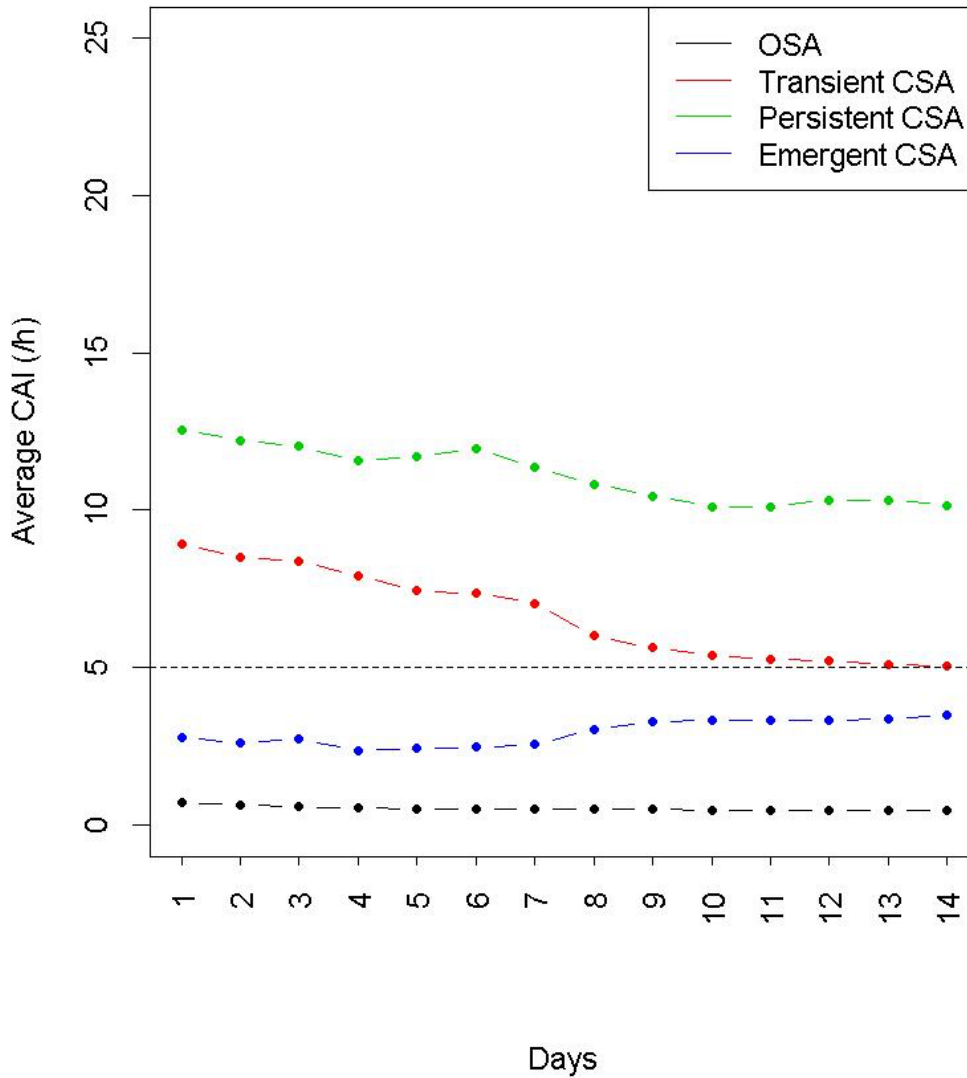Values are mean ± standard deviation, or number of patients (%).
CSA, central sleep apnea; OSA, obstructive sleep apnea.
Pairwise significance: [a]p<0.05 transient CSA vs OSA; [b]p<0.05 persistent CSA vs OSA; [c]p<0.05 emergent CSA vs OSA; [d]p<0.05 persistent CSA vs transient CSA; [e]p<0.05 emergent CSA vs transient CSA; [f]p<0.05 emergent CSA vs persistent CSA.
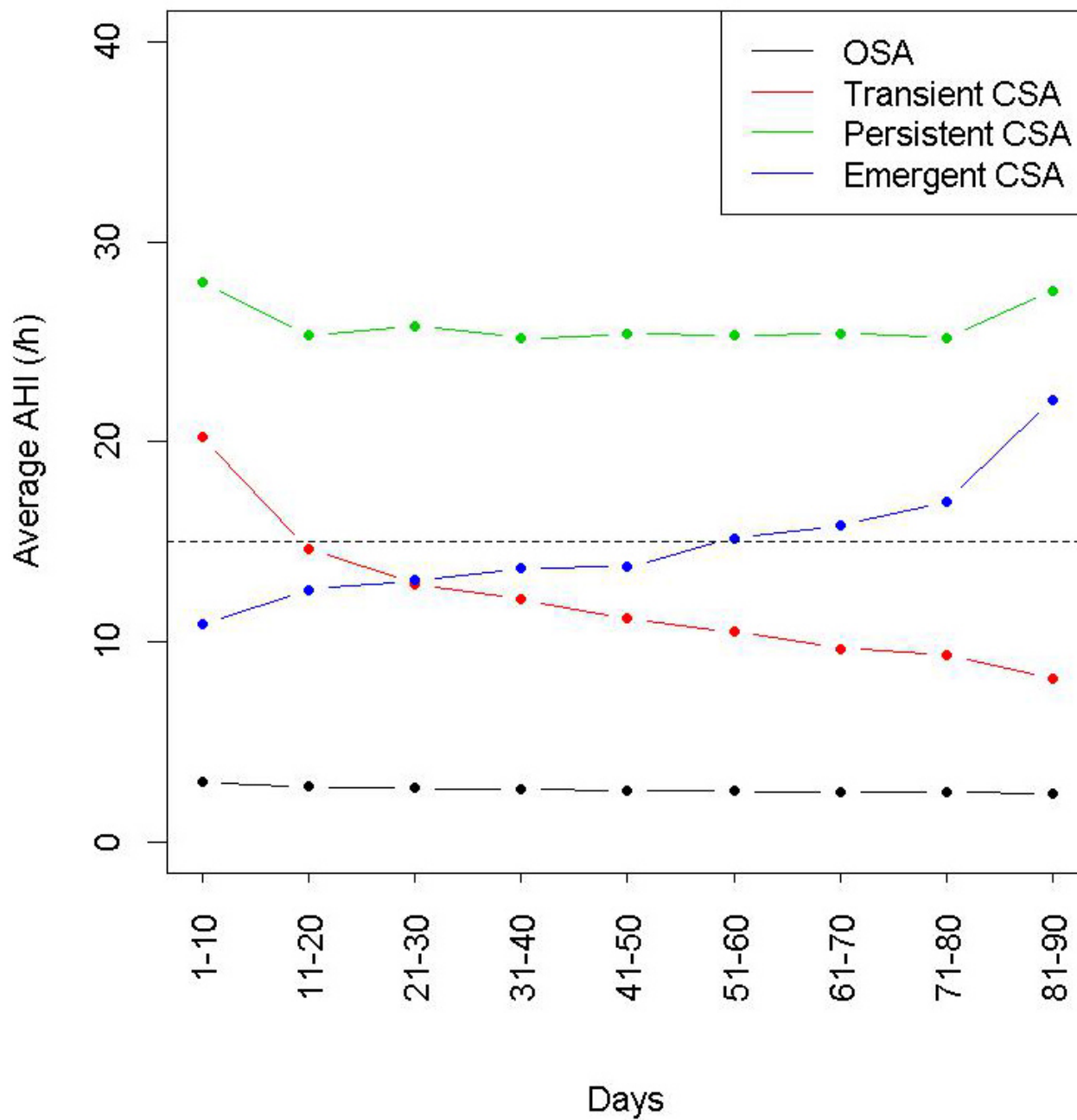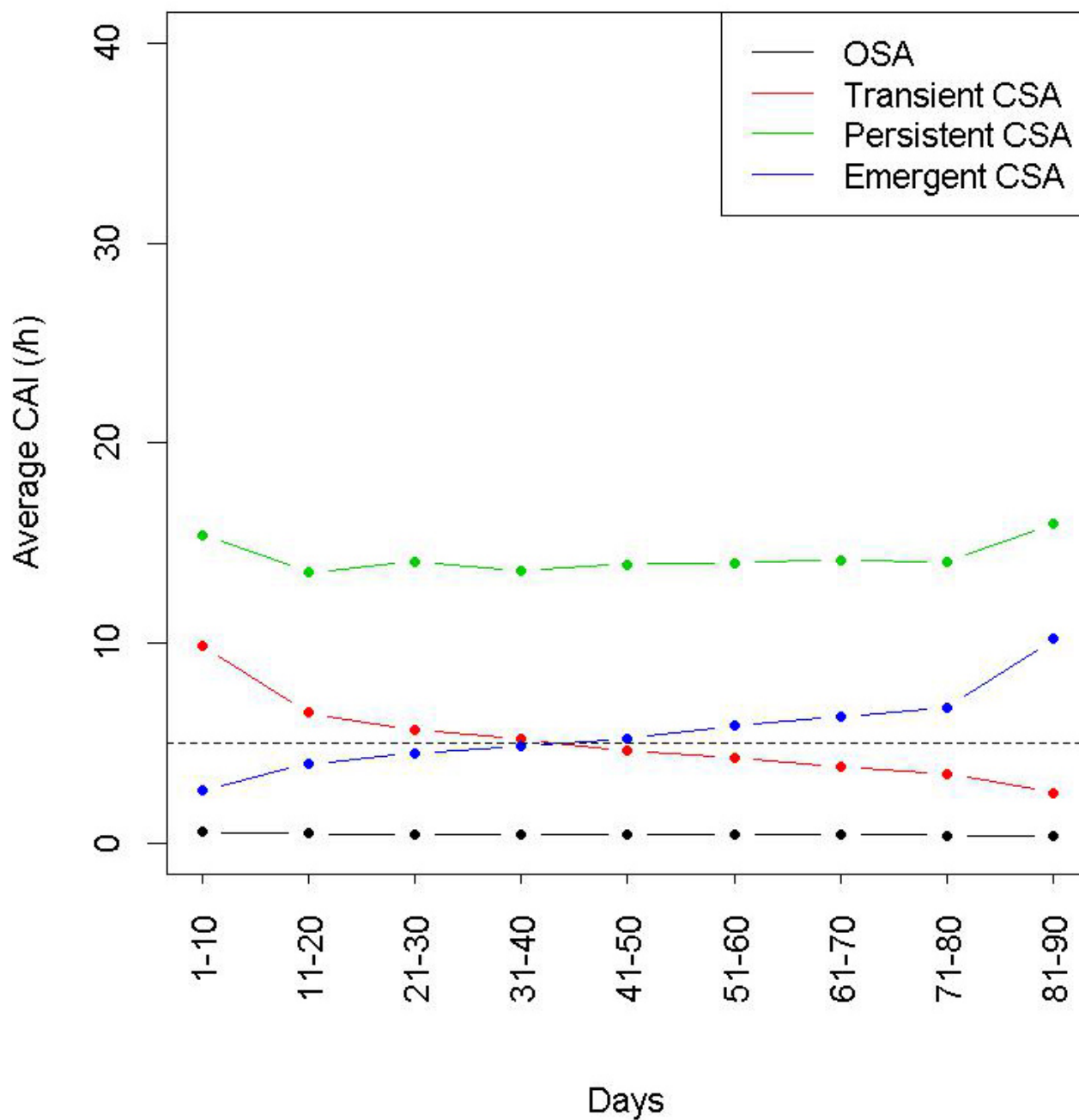
e-Figure 1A

e-Figure 1B

e-Figure 1. Residual apnea hypopnea index (AHI) **(A)** and central apnea index (CAI) **(B)** over the first 2 weeks of therapy in patient subgroups during continuous positive airway pressure therapy. CSA, central sleep apnea; OSA, obstructive sleep apnea.

e-Figure 2A

e-Figure 2B

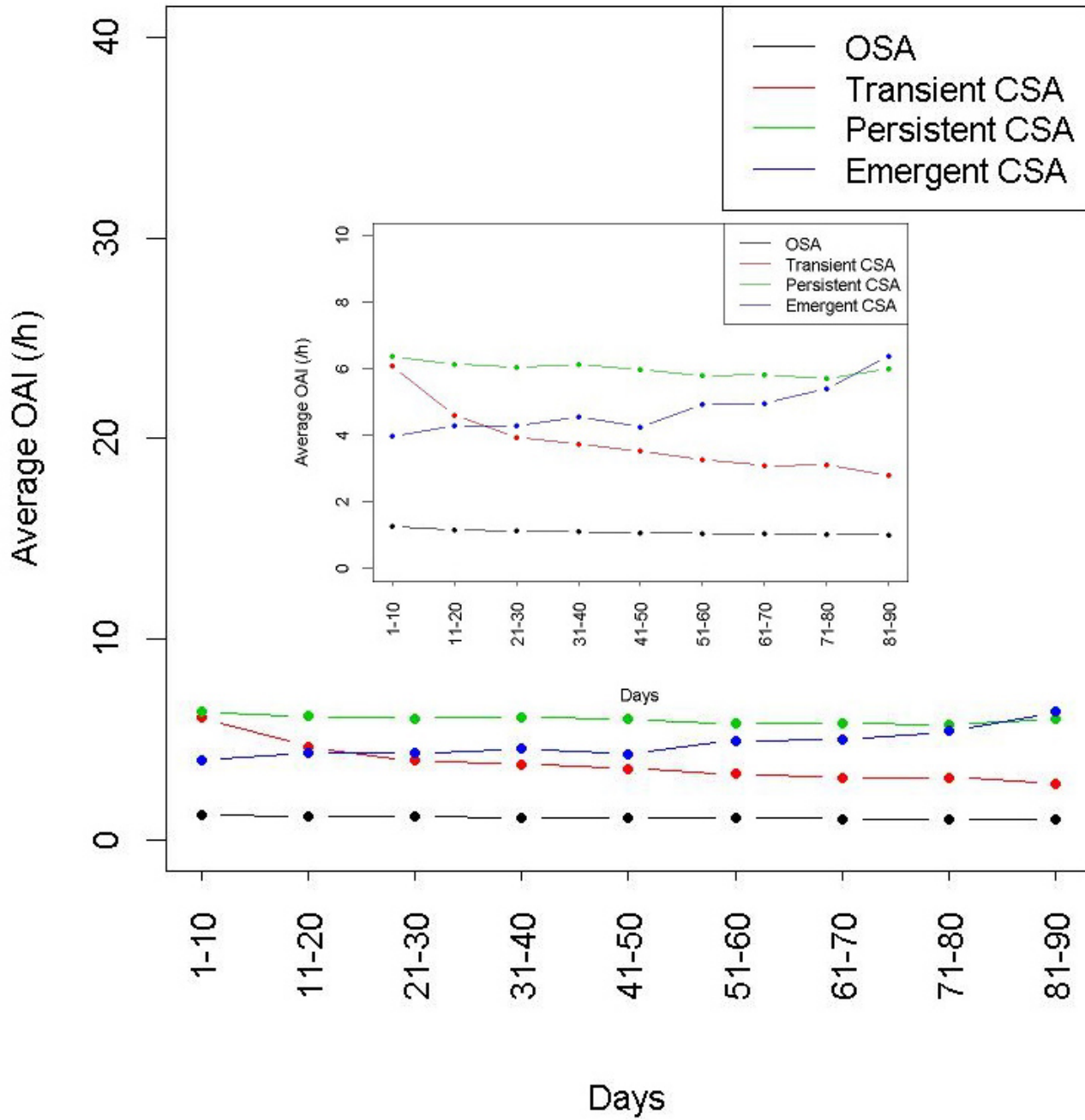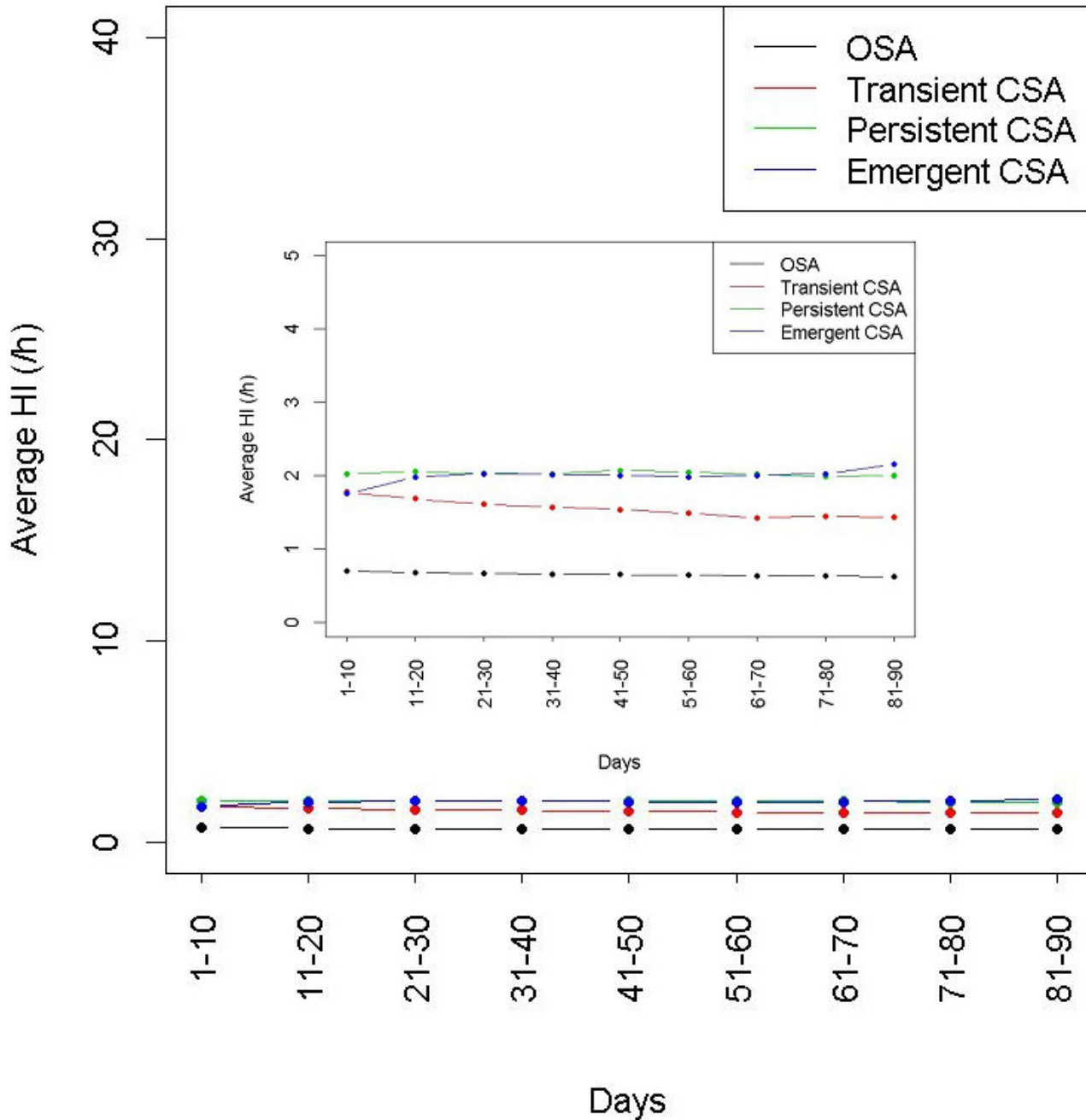**e-Figure 2C**

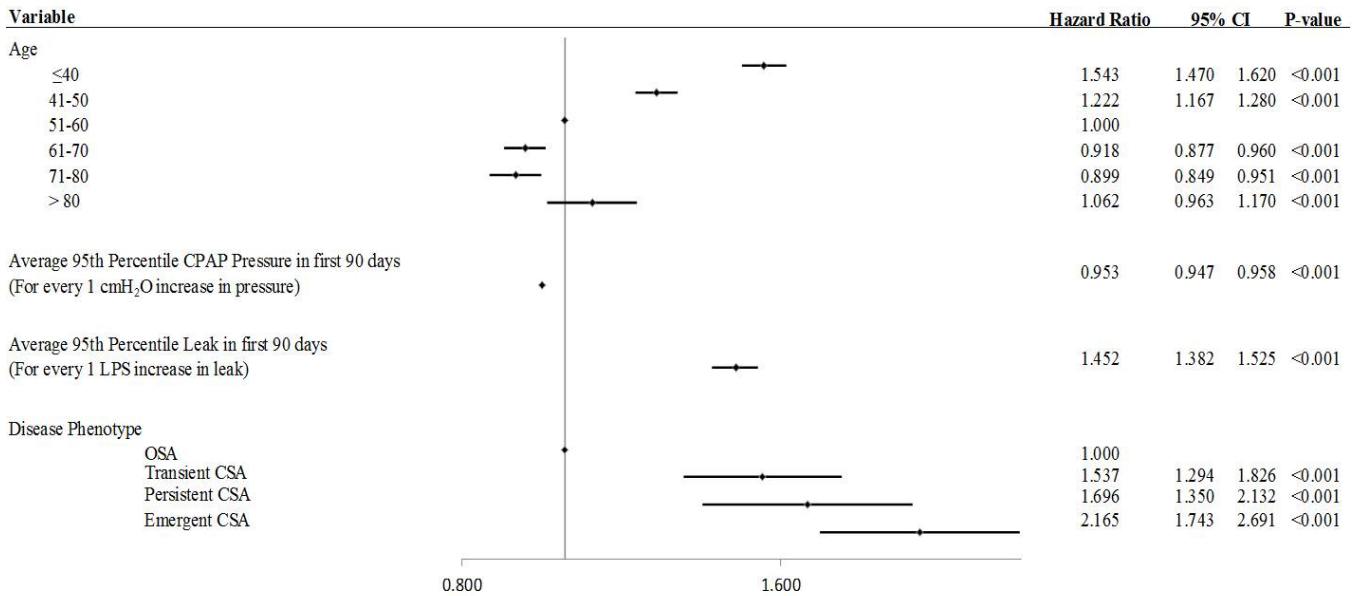**e-Figure 2D**

e-Figure 2. Residual apnea hypopnea index (AHI) (A), central apnea index (CAI) (B), obstructive apnea index (OAI) (C) and hypopnea index (HI) (D) over time in patient subgroups during continuous positive airway pressure therapy from the post-hoc analysis (patients with residual apnea-hypopnea index ≥15/h). CSA, central sleep apnea; OSA, obstructive sleep apnea.

Variable		Hazard Ratio	95% CI		P-value
Age					
≤40		1.543	1.470	1.620	<0.001
41-50		1.222	1.167	1.280	<0.001
51-60		1.000			
61-70		0.918	0.877	0.960	<0.001
71-80		0.899	0.849	0.951	<0.001
> 80		1.062	0.963	1.170	<0.001
Average 95th Percentile CPAP Pressure in first 90 days (For every 1 cmH_2O increase in pressure)		0.953	0.947	0.958	<0.001
Average 95th Percentile Leak in first 90 days (For every 1 LPS increase in leak)		1.452	1.382	1.525	<0.001
Disease Phenotype					
OSA		1.000			
Transient CSA		1.537	1.294	1.826	<0.001
Persistent CSA		1.696	1.350	2.132	<0.001
Emergent CSA		2.165	1.743	2.691	<0.001

0.800   1.600

e-Figure 3. Forest plot showing risk of therapy termination in different patient subgroups from the post-hoc analysis (patients with residual apnea-hypopnea index ≥15/h). CI, confidence interval; CPAP, continuous positive airway pressure; CSA, central sleep apnea; OSA, obstructive sleep apnea (no CSA); LPS, liters per second.

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