

Table S1 Univariate analysis of overall survival and progression-free survival in stage III and IV lung cancer

Overall survival	HR	Lower	Upper	p-value
Age	0.953	0.901	1.008	0.094
Gender	1.951	0.234	16.271	0.537
BMI	0.968	0.843	1.112	0.643
Smoke, PKY	1.005	0.99	1.021	0.503
ECOG status	5.197	1.217	22.186	0.026*
AHI	5.211	1.082	25.092	0.040*
ODI	1.013	0.989	1.037	0.289
Lower SpO ₂	0.96	0.88	1.048	0.366
TSpO ₂ 90%	1.038	1.007	1.07	0.016*
Cancer stage	1.479	0.405	5.402	0.554
Ischemic heart disease	1.03	0.22	4.74	0.968
COPD	0.57	0.07	4.52	0.593
Progression-free survival	HR	Lower	Upper	p-value
Age	0.97	0.92	1.02	0.267
Gender	4.48	0.46	43.10	0.195
BMI	1.00	0.88	1.14	0.966
Smoke, PKY	1.01	0.99	1.02	0.338
ECOG status	3.46	0.88	13.61	0.075
AHI	11.19	1.37	91.55	0.024*
ODI	1.01	0.99	1.03	0.301
Lower SpO ₂	0.98	0.90	1.06	0.563
TSpO ₂ 90%	1.03	1.01	1.06	0.020*
Cancer stage	2.11	0.57	7.79	0.262
Ischemic heart disease	3.10	0.73	13.17	0.125
COPD	0.35	0.04	2.81	0.322

Abbreviation: AHI: apnea-hypopnea index, BMI: body mass index, CI: confidence interval, COPD: chronic obstructive pulmonary disease, ECOG: Eastern Cooperative Oncology Group performance status, HR: hazard ratio, ODI: oxygen desaturation index, SpO₂: oxygen saturation, Tsat90%: the percentage of sleep time with oxygen saturation <90%

Table S2 Multivariate analysis of overall survival and progression-free survival in stage

III and IV lung cancer

Models (OS)		HR	95%CI	p-value
1	AHI	1.84	0.25 - 13.75	0.552
	Tsat90%	1.07	0.98 - 1.17	0.127
	ECOG status	0.11	0.00 - 8.06	0.314
2	AHI	5.59	1.06 - 29.51	0.043*
	Age	0.95	0.90 - 1.01	0.099
3	AHI	6.03	1.20 - 30.19	0.029*
	BMI	0.93	0.80 - 1.08	0.329
4	AHI	6.70	0.84 - 53.74	0.073
	ODI	0.99	0.95 - 1.03	0.572
5	AHI	2.67	0.43 - 16.54	0.290
	Tsat90%	1.03	0.99 - 1.06	0.105
Models (PFS)		HR	95%CI	p-value
1	AHI	6.58	0.69 - 63.03	0.102
	Tsat90%	1.02	0.99 - 1.05	0.212
2	AHI	10.14	1.22 - 84.04	0.032*
	Age	0.98	0.93 - 1.04	0.573
3	AHI	11.22	1.37 - 92.01	0.024*
	BMI	1.00	0.88 - 1.15	0.943
4	AHI	24.08	1.73 - 335.13	0.018*
	ODI	0.98	0.94 - 1.02	0.255

Note: multivariate regression models to adjust two confounders at a time

Abbreviation: AHI: apnea-hypopnea index, CI: confidence interval, HR: hazard ratio, ODI: oxygen desaturation index, OS: overall survival, PFS: progression-free survival, Tsat90%: the percentage of sleep time with oxygen saturation <90%

Table S3 Comparisons between the groups with high and low expression of vascular endothelial growth factor (VEGF)

	VEGF high expression (N= 12)	VEGF low expression (N = 10)	Odds ratio	P
Age, yrs	62.3±14.3	62.2±8.9	1(0.93-1.07)	0.98
Gender, male	12	9		1.00
Polysomnography				
AHI	40.1±22.9	36.9±27.1	0.99(0.96-1.13)	0.76
ODI	24.7±17.4	32.9±26.3	1.02(0.97-1.06)	0.28
Lowest SpO ₂	82.3±5.8	82.6±5.2	1.01(0.86-1.19)	0.88
Tsat90%	23.8±33.4	5.3±6.5	0.94(0.86-1.04)	0.86
Cancer stage				
Stage 1	1(8%)	5(50%)	1.00	
Stage 2	1(8%)	0(0%)		
Stage 3	3(25%)	1(10%)	0.07(0.00-1.51)	0.09
Stage 4	7(59%)	4(40%)	0.11(0.01-1.36)	0.09
Pathology				
Adenocarcinoma	7(58%)	6(60%)	1.00	
Squamous cell	2(16%)	4(40%)	2.33(0.31-17.54)	0.83
Other	3(26%)	0(0%)		

Note: Data are presented as mean ± standard deviation, or number (percentage).

Abbreviation: AHI: apnea-hypopnea index, ODI: oxygen desaturation index, SpO₂: oxygen saturation, Tsat90%: the percentage of sleep time with oxygen saturation <90%

Figure S1: Overall survival (Kaplan-Meier survival analysis) of lung cancer, grouped by the AHI severity (AHI < 15, AHI 15 to 29, and AHI = or > 30)

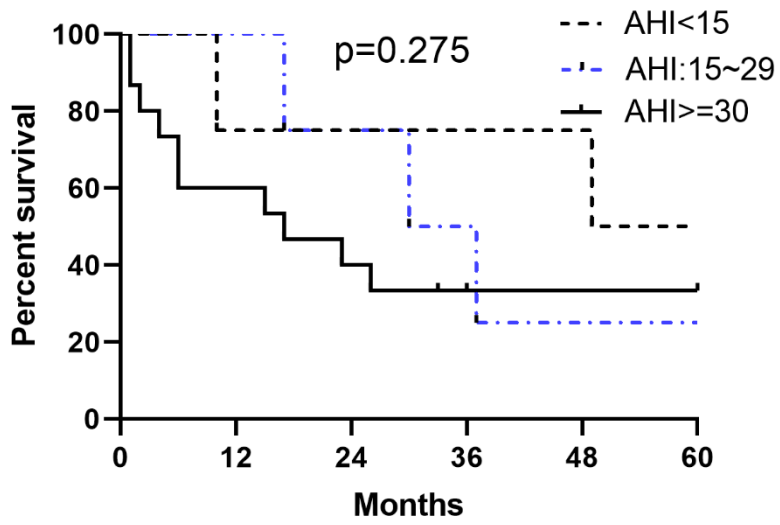


Figure S2: Kaplan-Meier survival analysis in a sleep cohort with lung cancer with hypoxia-inducible factor 1 α (HIF-1 α) (high vs low expression) (a) overall survival of stage III-IV lung cancer (b) progression-free survival of stage III-IV lung cancer.

