

Table S1 Comparison of characteristics according to age stratification in patients with NSCLC

Parameters	Age <65 years	65≤ Age <80 years	Age ≥80 years	P value
Number of patients	901	1166	382	
Male	566 (62.8)	881 (75.6)	260 (68.1)	<0.001
Ever-smoker	512 (56.8)	770 (66.0)	219 (57.3)	<0.001
BMI (kg/m ²)	23.5 (14.2, 42.8)	23 (13.7, 47.3)	21.6 (12.6, 35.1)	<0.001
Symptoms				
Asymptomatic	258 (28.6)	178 (15.3)	38 (10.0)	<0.001
Cough	267 (29.6)	378 (32.4)	128 (33.5)	0.27
Sputum	129 (14.3)	253 (21.7)	89 (23.3)	<0.001
Dyspnea	103 (11.4)	249 (21.4)	121 (31.7)	<0.001
Hoarseness	10 (1.1)	18 (1.5)	5 (1.3)	0.70
Hemoptysis	35 (3.9)	71 (6.1)	28 (7.3)	0.02
Weight loss	50 (5.6)	83 (7.1)	32 (8.4)	0.14
Pain	170 (18.9)	177 (15.2)	62 (16.2)	0.08
Histopathology				
Adenocarcinoma	659 (73.1)	615 (52.7)	156 (40.8)	<0.001
Squamous cell carcinoma	163 (18.1)	402 (34.5)	113 (29.6)	<0.001
Performance status (ECOG)				<0.001
0–1	674 (74.8)	767 (65.8)	134 (35.1)	
2–4	32 (3.6)	104 (8.9)	87 (22.8)	
PFT				
FVC (L)	3.4 (1.5, 6)	3 (0.9, 5.8)	2.5 (0.9, 5.2)	<0.001
FEV1 (L)	2.5 (0.7, 4.9)	2 (0.5, 109)	1.6 (0.4, 1059)	<0.001
DLco (per)	86 (17, 166)	79 (7, 183)	73.5 (1, 174)	<0.001
Clinical stage				<0.001
I	304 (33.7)	320 (27.4)	67 (17.5)	
II	76 (8.4)	103 (8.8)	33 (8.6)	
III	129 (14.3)	213 (18.3)	59 (15.5)	
IV	360 (40.0)	489 (41.9)	208 (54.5)	
Initial treatment				<0.001
Surgery only	372 (41.3)	364 (31.2)	44 (11.5)	
Surgery and perioperative treatment	68 (7.6)	42 (3.6)	2 (0.5)	
RT only	37 (4.1)	111 (9.5)	60 (15.7)	
CCRT	105 (11.7)	118 (10.1)	6 (1.6)	
Chemotherapy	214 (23.8)	269 (23.1)	41 (10.7)	
Best supportive care	101 (11.2)	254 (21.8)	225 (58.9)	
Unknown	4 (0.4)	8 (0.7)	4 (1.1)	
Median OS (months)	38.8 (36.3, 41.0)	17.4 (14.7, 20.2)	6.0 (4.7, 7.5)	<0.001

Values are presented as the number (%) or median (interquartile range). BMI, body mass index; CCRT, concurrent chemoradiotherapy; DLco, diffusing capacity of the lungs for carbon monoxide; ECOG, Eastern Cooperative Oncology Group; FEV1, forced expiratory volume exhaled in the first second; FVC, forced vital capacity; NSCLC, non-small cell lung cancer; OS, overall survival; PFT, pulmonary function test; RT, radiation therapy.

Table S2 Comparison of characteristics according to age stratification in patients with SCLC

Parameters	Age <65 years	65≤ Age <80 years	Age ≥80 years	P value
Number of patients	92	224	43	
Male	83 (90.2)	202 (90.2)	36 (83.7)	0.43
Ever-smoker	83 (90.2)	191 (85.3)	34 (79.1)	0.20
BMI (kg/m ²)	23.6 (12.5, 31.1)	22.8 (15.8, 34)	21 (17.4, 29.7)	0.005
Symptoms				
Asymptomatic	13 (14.1)	18 (8.0)	1 (2.3)	0.06
Cough	38 (41.3)	79 (35.3)	24 (55.8)	0.04
Sputum	20 (21.7)	50 (22.3)	12 (27.9)	0.70
Dyspnea	24 (26.1)	77 (34.4)	12 (27.9)	0.31
Hoarseness	2 (2.2)	15 (6.7)	1 (2.3)	0.23
Hemoptysis	4 (4.4)	9 (4.0)	4 (9.3)	0.33
Weight loss	5 (5.4)	12 (5.4)	7 (16.3)	0.03
Pain	26 (28.3)	50 (22.3)	8 (18.6)	0.39
Performance status (ECOG)				<0.001
0–1	65 (70.7)	126 (56.3)	12 (27.9)	
2–4	9 (9.8)	25 (11.2)	14 (32.6)	
PFT				
FVC (L)	3.5 (2, 6.1)	3.1 (1, 30.6)	2.2 (1.1, 3.6)	<0.001
FEV1 (L)	2.4 (0.8, 3.7)	1.9 (0.5, 3.3)	1.6 (0.8, 2.8)	<0.001
DLco (per)	78 (27, 157)	68 (15, 137)	63 (39, 129)	0.04
Clinical stage				0.02
Limited stage	45 (48.9)	79 (35.3)	12 (27.9)	
Extensive stage	46 (50.0)	144 (64.3)	31 (72.1)	
Initial treatment				<0.001
Surgery only	1 (1.1)	6 (2.7)	1 (2.3)	
Surgery and perioperative treatment	4 (4.4)	7 (3.1)	0 (0.0)	
RT only	4 (4.4)	7 (3.1)	4 (9.3)	
CCRT	30 (32.6)	33 (14.7)	5 (11.6)	
Chemotherapy	47 (51.1)	115 (51.3)	8 (18.6)	
Best supportive care	6 (6.5)	54 (24.1)	24 (55.8)	
Unknown	0 (0.0)	2 (0.9)	1 (2.3)	
Median OS (months)	14.5 (11.5, 17.6)	7.5 (6.5, 8.5)	2.6 (1.6, 3.8)	<0.001

Values are presented as the number (%) or median (interquartile range). BMI, body mass index; CCRT, Concurrent chemoradiotherapy; DLco, diffusing capacity of the lungs for carbon monoxide; ECOG, Eastern Cooperative Oncology Group; FEV1, forced expiratory volume exhaled in the first second; FVC, forced vital capacity; OS, overall survival; PFT, pulmonary function test; RT, Radiation therapy; SCLC, small cell lung cancer.

Table S3 Comparison of characteristics according to ECOG performance status in patients with NSCLC

Parameters	ECOG 0-1	ECOG 2-4	P value
Number of patients	1575	223	
Male	1083 (68.8)	168 (75.3)	0.046
Age (years)	67 (17, 90)	77 (40, 95)	<0.001
Ever-smoker	969 (61.5)	151 (67.7)	0.056
BMI (kg/m ²)	23.3 (14.8, 47.3)	21.7 (12.6, 34.4)	<0.001
Symptoms			
Asymptomatic	375 (23.8)	17 (7.6)	<0.001
Cough	480 (30.5)	84 (37.7)	0.03
Sputum	278 (17.7)	56 (25.1)	0.007
Dyspnea	248 (15.8)	77 (34.5)	<0.001
Hoarseness	20 (1.3)	5 (2.2)	0.23
Hemoptysis	84 (5.3)	16 (7.2)	0.26
Weight loss	88 (5.6)	25 (11.2)	0.001
Pain	232 (14.7)	57 (25.6)	<0.001
Histopathology			
Adenocarcinoma	1021 (64.8)	86 (38.6)	<0.001
Squamous cell carcinoma	421 (26.7)	80 (35.9)	0.004
PFT			
FVC (L)	3.2 (1, 6)	2.6 (0.9, 5.4)	<0.001
FEV1 (L)	2.2 (0.5, 109)	1.7 (0.4, 3.7)	<0.001
DLco (per)	84 (17, 183)	66 (17, 142)	<0.001
Clinical stage			<0.001
I	525 (33.3)	25 (11.2)	
II	147 (9.3)	22 (9.9)	
III	260 (16.5)	38 (17.0)	
IV	602 (38.2)	132 (59.2)	
Initial treatment			<0.001
Surgery only	607 (38.5)	16 (7.2)	
Surgery and perioperative treatment	102 (6.5)	2 (0.9)	
RT only	112 (7.1)	49 (22.0)	
CCRT	184 (11.7)	16 (7.2)	
Chemotherapy	365 (23.2)	49 (22.0)	
Best supportive care	197 (12.5)	87 (39.0)	
Unknown	8 (0.5)	4 (1.8)	
Median OS (months)	33.1 (31.3, 35.7)	5.1 (4.2, 6.8)	<0.001

Values are presented as the number (%) or median (interquartile range). BMI, body mass index; CCRT, concurrent chemoradiotherapy; DLco, diffusing capacity of the lungs for carbon monoxide; ECOG, Eastern Cooperative Oncology Group; FEV1, forced expiratory volume exhaled in the first second; FVC, forced vital capacity; NSCLC, non-small cell lung cancer; OS, overall survival; PFT, pulmonary function test; RT, radiation therapy.

Table S4 Comparison of characteristics according to ECOG performance status in patients with SCLC

Parameters	ECOG 0-1	ECOG 2-4	P value
Number of patients	203	48	
Male	184 (90.6)	41 (85.4)	0.30
Age (years)	69 (44,85)	77 (52,96)	<0.001
Ever-smoker	178 (87.7)	38 (79.2)	0.13
BMI (kg/m ²)	23 (15.5, 31.1)	21.9 (15.6, 34)	0.02
Symptoms			
Asymptomatic	17 (8.4)	2 (4.2)	0.54
Cough	82 (40.4)	19 (39.6)	0.92
Sputum	42 (20.7)	14 (29.2)	0.21
Dyspnea	57 (28.1)	23 (47.9)	0.008
Hoarseness	10 (4.9)	1 (2.1)	0.70
Hemoptysis	11 (5.4)	0 (0.0)	0.13
Weight loss	13 (6.4)	3 (6.3)	>0.99
Pain	45 (22.2)	13 (27.1)	0.47
PFT			
FVC (L)	3.2 (1.2, 30.6)	2.9 (1, 4.8)	0.17
FEV1 (L)	2 (0.5, 3.5)	2.1 (0.7, 3.1)	0.94
DLco (per)	72 (27, 137)	57 (25, 119)	0.17
Clinical stage			0.06
Limited stage	91 (44.8)	14 (29.2)	
Extensive stage	112 (55.2)	33 (68.8)	
Initial treatment			<0.001
Surgery only	5 (2.5)	0 (0.0)	
Surgery and perioperative treatment	8 (3.9)	0 (0.0)	
RT only	7 (3.5)	5 (10.4)	
CCRT	49 (24.1)	8 (16.7)	
Chemotherapy	114 (56.2)	14 (29.2)	
Best supportive care	19 (9.4)	21 (43.8)	
Unknown	1 (0.5)	0 (0.0)	
Median OS (months)	11.5 (10.3, 13.0)	3.2 (1.3, 6.4)	<0.001

Values are presented as the number (%) or median (interquartile range). BMI, body mass index; CCRT, concurrent chemoradiotherapy; DLco, diffusing capacity of the lungs for carbon monoxide; ECOG, Eastern Cooperative Oncology Group; FEV1, forced expiratory volume exhaled in the first second; FVC, forced vital capacity; OS, overall survival; PFT, pulmonary function test; RT, radiation therapy; SCLC, small cell lung cancer.

Table S5 Comparison of characteristics according to BMI stratification in patients with NSCLC

Parameters	BMI <20 kg/m ²	20≤ BMI <25 kg/m ²	BMI ≥25 kg/m ²	P value
Number of patients	396	1313	604	
Male	305 (77.0)	919 (70.0)	392 (64.9)	<0.001
Age (years)	71 (17, 92)	68 (25, 93)	66 (33, 95)	<0.001
Ever-smoker	276 (69.7)	820 (62.5)	341 (56.5)	<0.001
Symptoms				
Asymptomatic	56 (14.1)	249 (19.0)	156 (25.8)	<0.001
Cough	153 (38.6)	430 (32.8)	155 (25.7)	<0.001
Sputum	88 (22.2)	277 (21.1)	89 (14.7)	0.002
Dyspnea	92 (23.2)	269 (20.5)	86 (14.2)	0.001
Hoarseness	5 (1.3)	20 (1.52)	6 (0.99)	0.64
Hemoptysis	28 (7.1)	64 (4.9)	38 (6.3)	0.18
Weight loss	53 (13.4)	84 (6.4)	23 (3.8)	<0.001
Pain	74 (18.7)	218 (16.6)	85 (14.1)	0.14
Histopathology				
Adenocarcinoma	180 (45.5)	787 (59.9)	401 (66.4)	<0.001
Squamous cell carcinoma	145 (36.6)	355 (27.0)	145 (24.0)	<0.001
Performance status (ECOG)				
0–1	223 (56.3)	886 (67.5)	428 (70.9)	<0.001
2–4	63 (15.9)	102 (7.8)	43 (7.1)	
PFT				
FVC (L)	3 (0.9, 5.1)	3.1 (0.9, 6)	3.1 (1, 5.9)	0.002
FEV1 (L)	2 (0.5, 4.1)	2.2 (0.4, 1059)	2.2 (0.7, 4.9)	<0.001
DLco (per)	73 (7, 142)	82 (1, 174)	86 (17, 183)	<0.001
Clinical stage				
I	70 (17.7)	373 (28.4)	233 (38.6)	<0.001
II	40 (10.1)	107 (8.2)	62 (10.3)	
III	70 (17.7)	229 (17.4)	84 (13.9)	
IV	207 (52.3)	561 (42.7)	207 (34.3)	
Initial treatment				
Surgery only	76 (19.2)	434 (33.1)	266 (44.0)	<0.001
Surgery and perioperative treatment	10 (2.5)	62 (4.7)	37 (6.1)	
RT only	57 (14.4)	96 (7.3)	41 (6.8)	
CCRT	40 (10.1)	125 (9.5)	57 (9.4)	
Chemotherapy	85 (21.5)	294 (22.4)	127 (21.0)	
Best supportive care	127 (32.1)	290 (22.1)	76 (12.6)	
Unknown	1 (0.3)	12 (0.9)	0 (0.0)	
Median OS (months)	8.2 (6.7, 9.5)	23.1 (19.9, 27.5)	39.7 (36.6, 41.9)	<0.001

Values are presented as the number (%) or median (interquartile range). BMI, body mass index; CCRT, concurrent chemoradiotherapy; DLco, diffusing capacity of the lungs for carbon monoxide; ECOG, Eastern Cooperative Oncology Group; FEV1, forced expiratory volume exhaled in the first second; FVC, forced vital capacity; NSCLC, non-small cell lung cancer; OS, overall survival; PFT, pulmonary function test; RT, radiation therapy.

Table S6 Comparison of characteristics according to BMI stratification in patients with SCLC

Parameters	BMI <20 kg/m ²	20 ≤ BMI <25 kg/m ²	BMI ≥25 kg/m ²	P value
Number of patients	54	197	83	
Male	50 (92.6)	177 (89.9)	74 (89.2)	0.79
Age (years)	74 (23, 85)	70 (44, 93)	69 (48, 96)	0.041
Ever-smoker	45 (83.3)	172 (87.3)	71 (85.5)	0.72
Symptoms				
Asymptomatic	2 (3.7)	24 (12.2)	4 (4.8)	0.048
Cough	19 (35.2)	85 (43.2)	30 (36.1)	0.40
Sputum	12 (22.2)	44 (22.3)	21 (25.3)	0.85
Dyspnea	16 (29.6)	65 (33.0)	27 (32.5)	0.90
Hoarseness	2 (3.7)	12 (6.1)	3 (3.6)	0.19
Hemoptysis	3 (5.6)	7 (3.6)	7 (8.4)	0.23
Weight loss	3 (5.6)	16 (8.1)	4 (4.8)	0.56
Pain	17 (31.5)	44 (22.3)	21 (25.3)	0.38
Performance status (ECOG)				
0–1	27 (50.0)	118 (59.9)	46 (55.4)	0.057
2–4	13 (24.1)	24 (12.2)	8 (9.6)	
PFT				
FVC (L)	2.9 (1.8, 4.3)	3.1 (1.1, 30.6)	3.3 (1, 4.7)	0.012
FEV1 (L)	1.8 (0.8, 3.1)	2 (0.8, 3.7)	2.2 (0.7, 3.5)	0.002
DLco (per)	66 (25, 129)	72 (18, 157)	73.5 (15, 120)	0.19
Clinical stage				
Limited stage	12 (22.2)	79 (40.1)	37 (44.6)	0.02
Extensive stage	42 (77.8)	117 (59.4)	46 (55.4)	
Initial treatment				
Surgery only	0 (0.0)	6 (3.1)	2 (2.4)	0.17
Surgery and perioperative treatment	0 (0.0)	7 (3.6)	4 (4.8)	
RT only	3 (5.6)	7 (3.6)	2 (2.4)	
CCRT	8 (14.8)	42 (21.3)	13 (15.7)	
Chemotherapy	22 (40.7)	91 (46.2)	48 (57.8)	
Best supportive care	20 (37.0)	43 (21.8)	13 (15.7)	
Unknown	1 (1.9)	1 (0.5)	1 (1.2)	
Median OS (months)	4.3 (2.6, 6.4)	8.2 (7.2, 10.1)	11.7 (10.3, 14.5)	<0.001

Values are presented as the number (%) or median (interquartile range). BMI, body mass index; CCRT, concurrent chemoradiotherapy; DLco, diffusing capacity of the lungs for carbon monoxide; ECOG, Eastern Cooperative Oncology Group; FEV1, forced expiratory volume exhaled in the first second; FVC, forced vital capacity; OS, overall survival; PFT, pulmonary function test; RT, radiation therapy; SCLC, small cell lung cancer.

Table S7 Risk factors for mortality in SCLC patients with old age (≥ 65 years) assessed by Cox proportional hazards model

Parameters	Univariate analysis			Multivariate analysis		
	HR	95% CI	P value	HR	95% CI	P value
Male sex	1.28	0.84, 1.97	0.256			
Ever smoker	1.05	0.722, 1.52	0.802			
BMI	0.92	0.88, 0.96	<0.001	0.91	0.86, 0.97	0.002
Performance status (ECOG)						
0–1 (ref)	1			1		
2–4	3.15	2.16, 4.60	<0.001	1.97	1.24, 3.14	0.004
PFT						
FVC (L)	0.97	0.84, 1.12	0.654			
FEV1 (L)	0.76	0.58, 1.00	0.053			
DLco (per)	0.99	0.98, 1.00	0.042			
Clinical stage						
Limited stage (ref)	1			1		
Extensive stage	2.93	2.20, 3.90	<0.001	2.93	2.07, 4.17	<0.001
Treatment						
Anti-cancer treatment (ref)	1			1		
Best supportive care	3.16	2.39, 4.19	<0.001	3.31	1.97, 5.58	<0.001

BMI, body mass index; DLco, diffusing capacity of the lungs for carbon monoxide; ECOG, Eastern Cooperative Oncology Group; FEV1, forced expiratory volume exhaled in the first second; FVC, forced vital capacity; PFT, pulmonary function test; SCLC, small cell lung cancer.

Table S8 Risk factors for mortality in SCLC patients with poor performance status (2-4) assessed by Cox proportional hazards model

Parameters	Univariate analysis			Multivariate analysis		
	HR	95% CI	P value	HR	95% CI	P value
Age	1.02	0.99, 1.05	0.225			
Male sex	1.54	0.64, 3.66	0.334			
Ever smoker	1.13	0.54, 2.35	0.754			
BMI	0.85	0.75, 0.95	0.006	0.85	0.76, 0.95	0.004
PFT						
FVC (L)	0.93	0.61, 1.42	0.735			
FEV1 (L)	0.87	0.43, 1.76	0.700			
DLco (per)	0.98	0.95, 1.01	0.114			
Clinical stage						
Limited stage (ref)	1			1		
Extensive stage	2.57	1.28, 5.17	0.008	2.96	1.40, 6.27	0.005
Treatment						
Anti-cancer treatment (ref)	1					
Best supportive care	2.23	1.19, 4.16	0.012			

BMI, body mass index; DLco, diffusing capacity of the lungs for carbon monoxide; FEV1, forced expiratory volume exhaled in the first second; FVC, forced vital capacity; PFT, pulmonary function test; SCLC, small cell lung cancer.

Table S9 Risk factors for mortality in SCLC patients with low BMI (<20 kg/m²) assessed by Cox proportional hazards model

Parameters	Univariate analysis			Multivariate analysis		
	HR	95% CI	P value	HR	95% CI	P value
Age	1.04	1.00, 1.08	0.038			
Male sex	1.52	0.54, 4.25	0.424			
Ever smoker	1.10	0.53, 2.25	0.806			
Performance status (ECOG)						
0–1 (ref)	1			1		
2–4	4.67	2.13, 10.24	<0.001	6.83	2.35, 19.89	<0.001
PFT						
FVC (L)	0.31	0.16, 0.57	<0.001	0.19	0.08, 0.43	<0.001
FEV1 (L)	0.42	0.20, 0.90	0.026			
DLco (per)	0.98	0.96, 1.00	0.085			
Clinical stage						
Limited stage (ref)	1					
Extensive stage	2.98	1.44, 6.20	0.003			
Treatment						
Anti-cancer treatment (ref)	1					
Best supportive care	3.44	1.85, 6.40	<0.001			

BMI, body mass index; DLco, diffusing capacity of the lungs for carbon monoxide; ECOG, Eastern Cooperative Oncology Group; FEV1, forced expiratory volume exhaled in the first second; FVC, forced vital capacity; PFT, pulmonary function test; SCLC, small cell lung cancer.