

Table S1 Interval from diagnosis to treatment for patients with extensive stage small cell lung cancer in each subgroup					
Characteristic	N	Months from diagnosis to treatment, n (%)		χ^2	P
		<1 month	≥1 months		
Group				2.51	0.11
ICIs era	4,228	2,100 (49.7)	2,128 (50.3)		
Non-ICIs era	4,455	2,137 (48.0)	2,318 (52.0)		
Sex (%)				0.002	0.96
Female	4,144	2,021 (48.8)	2,123 (51.2)		
Male	4539	2,216 (48.8)	2,323 (51.2)		
Age (%) (years)				50.80	<0.001
≤65	4,124	2,168 (52.6)	1,956 (47.4)		
≥78	933	390 (41.8)	543 (58.2)		
66-77	3,626	1,679 (46.3)	1,947 (53.7)		
Race (%)				5.22	0.07
Black	740	355 (48.0)	385 (52.0)		
Other	433	189 (43.6)	244 (56.4)		
White	7,510	3,693 (49.2)	3,817 (50.8)		
Marital (%)				1.10	0.29
Married	4,366	2,106 (48.2)	2,260 (51.8)		
Unmarried	4,317	2,131 (49.4)	2,186 (50.6)		
Income (%) (\$)				5.05	0.08
35000-74999	5,246	2,610 (49.8)	2,636 (50.2)		
≥75000	3,221	1,528 (47.4)	1,693 (52.6)		
<35000	216	99 (45.8)	117 (54.2)		
Area (%)					
Metropolitan	6,900	3,386 (49.1)	3,514 (50.9)		
Non-metropolitan	1,783	851 (47.7)	932 (52.3)		
Primary Site (%)				21.65	0.001
Main bronchus	993	541 (54.5)	452 (45.5)		
Upper lobe, lung	4,058	1,949 (48.0)	2,109 (52.0)		
Middle lobe, lung	334	165 (49.4)	169 (50.6)		
Lower lobe, lung	1,800	827 (45.9)	973 (54.1)		
Overlapping lesion of lung	140	67 (47.9)	73 (52.1)		
Lung_ NOS	1,358	688 (50.7)	670 (49.3)		
Grade (%)				18.79	0.001
I	3	2 (66.7)	1 (33.3)		
II	12	8 (66.7)	4 (33.3)		
III	385	149 (38.7)	236 (61.3)		
IV	448	213 (47.5)	235 (52.5)		
Unknown	7,835	3,865 (39.3)	3,970 (50.7)		
VPI (%)					
No	8,308	4,071 (49.0)	4,237 (51.0)	3.22	0.07
Yes	375	166 (44.3)	209 (55.7)		
T stage (%)				12.53	0.03
T0	104	56 (53.8)	48 (46.2)		
T1	864	404 (46.8)	460 (53.2)		
T2	1,633	802(49.1)	831 (50.9)		
T3	1,545	703 (45.5)	842 (54.5)		
T4	3,416	1,703 (49.9)	1,713 (50.1)		
TX	1,121	569 (50.8)	552 (49.2)		
N stage (%)				42.11	<0.001
N0	980	428 (43.7)	552 (56.3)		
N1	578	253 (43.8)	325 (56.2)		
N2	4,121	1,992 (48.3)	2,129 (51.7)		
N3	2,546	1,361 (53.5)	1,185 (46.5)		
NX	457	203 (44.4)	254 (55.6)		
Tumor size (%) (mm)				21.96	<0.001
>146	89	48 (53.9)	41 (46.1)		
≤146	6,633	3,144 (47.4)	3,489 (52.6)		
Unknown	1,961	1,045 (53.3)	916 (46.7)		
Bone met (%)				14.94	<0.001
No/Unknown	5,209	2,630 (50.5)	2,579 (49.5)		
Yes	3,474	1,607 (46.3)	1,867 (53.7)		
Brain met (%)				50.28	<0.001
No/Unknown	5,946	2,748 (46.2)	3,198 (53.8)		
Yes	2,737	1,489 (54.4)	1,248 (45.6)		
Liver met (%)				18.87	<0.001
No/Unknown	4,823	2,454 (50.9)	2,369 (49.1)		
Yes	3,860	1,783 (46.2)	2,077 (53.8)		
Lung met (%)				0.78	0.38
No/Unknown	7,130	3,495 (49.0)	3,635 (51.0)		
Yes	1,553	742 (47.8)	811 (52.2)		
Surgery primary site (%)				28.62	<0.001
No	8,582	4,161 (48.5)	4,421 (51.5)		
Yes	101	76 (75.2)	25 (24.8)		
Radiotherapy (%)				47.15	<0.001
No	4,287	1,932 (45.1)	2,355 (54.9)		
Yes	4,396	2,305 (52.4)	2,091 (47.6)		
Chemotherapy (%)				22.27	<0.001
No/Unknown	846	478 (56.5)	368 (43.5)		
Yes	7,837	3,759 (48.0)	4,078 (52.0)		

χ^2 : Chi-squared test; ICIs, immune checkpoint inhibitors; NOS, not otherwise specified; VPI, visceral and pleural invasion.

Table S2 Short interval from diagnosis to treatment for each subgroup ES-SCCLC patients in ICIs and non-ICIs era

Characteristic	From diagnosis to treatment is less than 1 month, n (%)		χ^2	P
	ICIs-era (N=2,128)	Non-ICIs (N=2,318)		
Sex (%)			0.013	0.91
Female	1,018 (50.7)	1,105 (51.7)		
Male	1,110 (50.0)	1,213(52.3)		
Age (%) (years)			0.657	0.72
≤65	924 (45.9)	1,032 (48.9)		
≥78	266 (58.6)	277 (57.8)		
66-77	938 (53.2)	1,009 (54.1)		
Race (%)			0.528	0.77
Black	186 (50.7)	199 (53.4)		
Other	122 (54.0)	122 (58.9)		
White	1,820 (50.1)	1,997 (51.5)		
Marital (%)			0.583	0.45
Married	1,069 (50.7)	1,191 (52.7)		
Unmarried	1,059 (49.9)	1,127 (51.3)		
Income (%) (\$)			94.51	<0.001
35000-74999	1,116 (48.8)	1,520 (51.4)		
≥75000	967 (52.2)	726 (53.1)		
<35000	45 (51.1)	72 (56.25)		
Area (%)			2.188	0.14
Metropolitan	1,677 (49.7)	1,837 (52.1)		
Non-metropolitan	401 (52.9)	481 (51.7)		
Primary Site (%)			11.25	0.05
Main bronchus	204 (45.1)	248 (48.7)		
Upper lobe, lung	995 (51.1)	1,114 (52.8)		
Middle lobe, lung	98 (59.0)	71 (42.3)		
Lower lobe, lung	475 (53.1)	498 (55.0)		
Overlapping lesion of lung	41 (52.6)	32 (51.6)		
Lung_ NOS	315 (48.0)	355 (50.6)		
Grade (%)			19.00	0.001
I	4 (100.0)	1 (33.3)		
II	1 (25)	4 (33.3)		
III	204 (59.0)	236 (61.3)		
IV	148 (50.0)	235 (52.5)		
Unknown	1,771 (49.5)	1,842 (51.1)		
VPI (%)			30.69	<0.001
No	1,989 (50.1)	1,791 (50.8)		
Yes	139 (53.5)	51 (65.4)		
T stage (%)			43.49	<0.001
T0	25 (41.0)	23 (53.5)		
T1	238 (54.0)	222 (52.5)		
T2	338 (50.0)	493 (51.5)		
T3	357 (54.3)	485 (54.4)		
T4	883 (49.5)	830 (50.8)		
TX	287 (46.8)	265 (52.2)		
N stage (%)			29.36	<0.001
N0	283 (55.7)	269 (57.0)		
N1	166 (55.7)	159 (56.8)		
N2	953 (50.8)	1,176 (52.4)		
N3	580 (45.2)	605 (47.9)		
NX	146 (55.3)	93 (47.9)		
Tumor size (%) (mm)			17.33	0.006
>146	15 (37.5)	26 (53.1)		
≤146	1,697 (52.2)	1,792 (53.0)		
Unknown	416 (44.3)	500 (48.9)		
Bone met (%)			1.200	0.27
No/Unknown	1,224 (48.7)	1,355 (50.2)		
Yes	904 (52.7)	963 (54.8)		
Brain met (%)			1.10	0.30
No/Unknown	1,515 (53.1)	1,683 (54.4)		
Yes	613 (44.6)	635 (46.6)		
Liver met (%)			0.055	0.82
No/Unknown	1,130 (48.1)	1,239 (50.1)		
Yes	998 (53.1)	1,079 (54.4)		
Lung met (%)			10.75	0.001
No/Unknown	1,782 (50.1)	1,853 (51.7)		
Yes	346 (50.6)	465 (53.5)		
Surgery primary site (%)			22.38	<0.001
No	2,113 (50.7)	2,308 (52.3)		
Yes	42 (73.7)	10 (22.7)		
Radiotherapy (%)			3.01	0.08
No	1,156 (54.3)	1,199 (55.5)		
Yes	972 (46.3)	1,119 (48.7)		
Chemotherapy (%)			1.67	0.20
No/Unknown	188 (44.4)	180 (42.6)		
Yes	1,940 (51.0)	2,138 (53.0)		

χ^2 : Chi-squared test; ICIs, immune checkpoint inhibitors; NOS, not otherwise specified; VPI, visceral and pleural invasion.

Table S3 Metastasis of ES-SCLC patients in ICIs and non-ICIs era

Distant metastasis	ICIs era, n (%) (n=4,825)	Non-ICIs era, n (%) (n=5,082)
Bone met	1,917 (39.7)	1,925(37.9)
Brain met	1,487 (30.8)	1,465 (28.8)
Liver met	2,178 (45.1)	2,289 (45.0)
Lung met	818 (17.0)	1,034 (20.3)
Bone + Brain met	473 (15.4)	436 (8.6)
Bone + Liver met	1,064 (22.1)	1,049 (20.6)
Bone + Lung met	345 (7.2)	398 (7.8)
Brain + Liver met	483 (10.0)	449 (8.8)
Brain + Lung met	224 (4.6)	273 (5.4)
Liver + Lung met	383 (7.9)	473 (9.3)
Bone + Brain + Liver met	265 (5.5)	240 (4.7)
Brain + Liver + Lung met	104 (2.6)	122 (2.4)
Bone + Brain + Lung met	101(2.09)	111 (2.2)
Bone + Liver + Lung met	227 (4.7)	241 (4.7)
Bone + Brain + Liver + Lung met	66 (1.4)	70 (1.4)

ES-SCLC, extensive-stage small cell lung cancer; ICIs, immune checkpoint inhibitors.

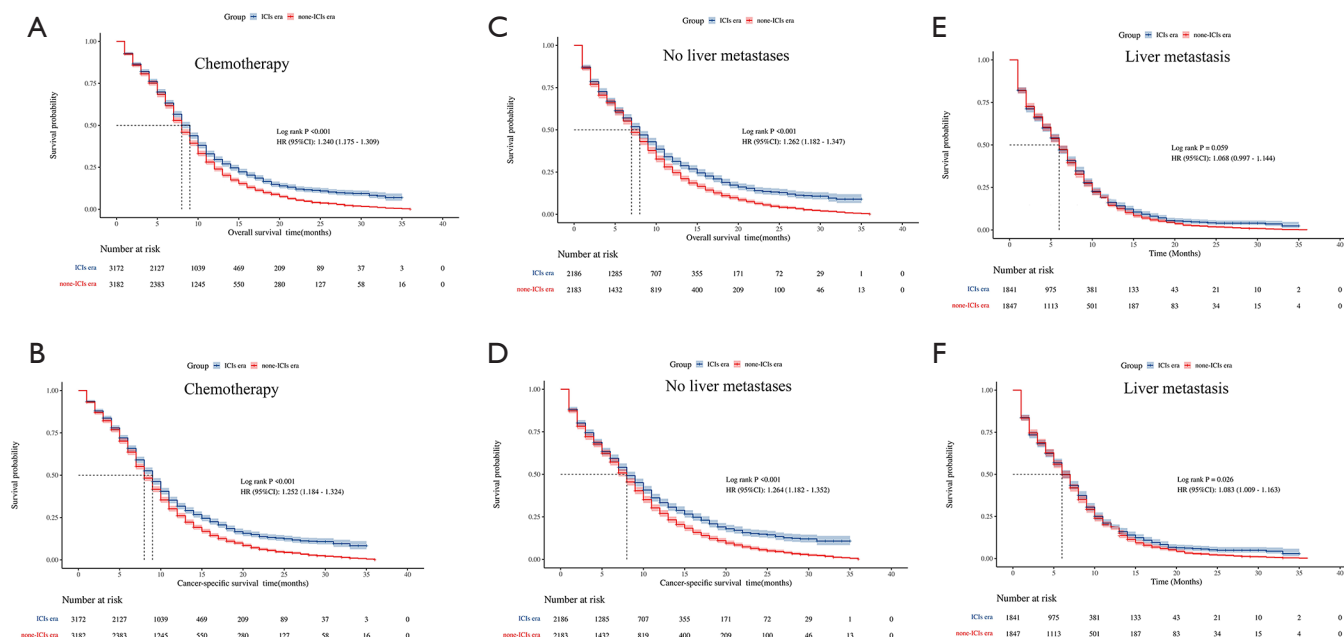


Figure S1 KM analysis of survival differences between the two eras (non-ICIs and ICIs) in subgroups. Chemotherapy (A, B) and no liver metastases (C, D) or liver metastases (E, F). KM, Kaplan-Meier; ICIs, immune checkpoint inhibitors.