

Supplementary Table 1: Univariate analyses of cancer recurrence and all-cause mortality

	Cancer recurrence		All-cause mortality	
	HR (95% CI)	p	HR (95% CI)	p
Bupivacaine dose, mg	1.000 (0.997 – 1.002)	0.738	1.003 (0.998 – 1.008)	0.267
Age, year	1.015 (0.998 – 1.031)	0.078	1.054 (1.019 – 1.091)	0.002
Sex, male	0.897 (0.625 – 1.287)	0.555	2.178 (1.050 – 4.521)	0.037
Body mass index, kg·m⁻²	0.990 (0.939 – 1.045)	0.722	1.027 (0.930 – 1.134)	0.597
ASA class ≥ 3	1.475 (0.991 – 2.194)	0.055	2.976 (1.485 – 5.962)	0.002
ECOG grade ≥ 1	1.199 (0.797 – 1.805)	0.384	2.657 (1.325 – 5.328)	0.006
COPD	1.886 (1.013 – 3.510)	0.045	2.605 (0.910 – 7.455)	0.074
Diabetes	1.560 (1.016 – 2.394)	0.042	1.711 (0.768 – 3.809)	0.189
Coronary artery disease	1.347 (0.784 – 2.313)	0.281	1.140 (0.398 – 3.263)	0.807
Heart failure	2.185 (1.203 – 3.968)	0.010	1.535 (0.467 – 5.043)	0.480
Stroke	1.051 (0.429 – 2.572)	0.913	3.561 (1.248 – 10.157)	0.018
Chronic kidney disease	1.046 (0.548 – 1.999)	0.891	1.255 (0.382 – 4.123)	0.708
FVC, % predicted	0.197 (0.057 – 0.681)	0.010	0.383 (0.037 – 3.945)	0.420
FEV1, % predicted	0.243 (0.077 – 0.772)	0.017	1.252 (0.142 – 11.005)	0.839
Pretreatment CEA, µg·L⁻¹†	2.647 (1.804 – 3.886)	<0.001	4.992 (2.512 – 9.918)	<0.001
Hemoglobin concentration, g·dL⁻¹	0.827 (0.727 – 0.942)	0.004	1.071 (0.836 – 1.373)	0.586
Platelet count, µL⁻¹	1.000 (1.000 – 1.000)	0.009	1.000 (1.000 – 1.000)	0.204
International normalized ratio	0.100 (0.002 – 6.089)	0.272	0.202 (0 – 520.457)	0.690
Type of surgery		0.002		0.003
Sublobar resection (reference)				
Lobectomy	1.923 (1.149 – 3.221)	0.013	1.442 (0.498 – 4.174)	0.500
Bilobectomy or pneumonectomy	6.445 (2.164 – 19.194)	<0.001	10.600 (2.347 – 47.883)	0.002
Thoracoscopic surgery	0.872 (0.406 – 1.871)	0.724	0.519 (0.180 – 1.501)	0.226
Radical lymph node dissection	1.899 (1.121 – 3.218)	0.017	1.446 (0.504 – 4.152)	0.493
Intraoperative blood loss, mL‡	1.111 (0.979 – 1.261)	0.103	1.685 (1.352 – 2.099)	<0.001
Perioperative blood transfusion	1.589 (0.893 – 2.826)	0.115	4.016 (1.803 – 8.948)	<0.001
Anesthesia duration, min‡	2.023 (1.308 – 3.129)	0.002	6.006 (2.534 – 14.234)	<0.001
Daily maximum NRS pain score				
Postoperative day 0	0.936 (0.821 – 1.067)	0.324	0.986 (0.733 – 1.326)	0.926
Postoperative day 1	1.098 (0.986 – 1.223)	0.087	1.011 (0.767 – 1.334)	0.936
Postoperative day 2	1.091 (0.940 – 1.266)	0.254	0.860 (0.550 – 1.345)	0.509
Postoperative day 0-2 average	1.066 (0.905 – 1.257)	0.444	0.999 (0.661 – 1.511)	0.997
Postoperative LOS, day	1.022 (0.994 – 1.051)	0.131	1.066 (1.034 – 1.100)	<0.001
Year of operation (2011–15 vs. 2005–10)	0.958 (0.578 – 1.589)	0.869	0.922 (0.373 – 2.276)	0.860
Preoperative C/T ± R/T	3.795 (1.843 – 7.816)	<0.001	4.731 (1.428 – 15.681)	0.011
Postoperative C/T	5.132 (3.393 – 7.760)	<0.001	4.080 (1.830 – 9.096)	<0.001
Postoperative R/T	9.099 (5.292 – 15.647)	<0.001	7.543 (3.084 – 18.449)	<0.001
Cancer stage		<0.001		<0.001
II vs. I	5.566 (3.495 – 8.864)	<0.001	13.693 (6.000 – 31.248)	<0.001
III vs. I	9.028 (5.898 – 13.819)	<0.001	7.419 (3.066 – 17.951)	<0.001
Subtype		0.044		0.324
SCC vs. adenocarcinoma	1.871 (1.048 – 3.338)	0.034	2.220 (0.773 – 6.379)	0.139
Other subtypes vs. adenocarcinoma	1.700 (0.859 – 3.364)	0.128	1.331 (0.316 – 5.612)	0.697
Tumor differentiation		<0.001		0.016
Moderate vs. good	7.621 (1.856 – 31.290)	0.005	. (0.000 – .)	0.987
Poor vs. good	23.559 (5.768 – 96.233)	<0.001	. (0.000 – .)	0.987
Microscopic necrosis	2.313 (1.522 – 3.515)	<0.001	3.781 (1.821 – 7.851)	<0.001
Lymphocytic infiltration	1.641 (0.721 – 3.734)	0.238	5.692 (2.339 – 13.851)	<0.001
Lymphovascular invasion	6.695 (4.630 – 9.683)	<0.001	4.650 (2.295 – 9.423)	<0.001
Perineural infiltration	4.207 (1.956 – 9.048)	0.002	4.171 (0.989 – 17.598)	0.052

ASA: American Society of Anesthesiologists; CEA: carcinoembryonic antigen; CI=confidence interval; COPD: chronic obstructive pulmonary disease; C/T: chemotherapy; ECOG: Eastern Cooperative Oncology Group; FEV1: forced expiratory volume in one second; FVC: forced vital capacity; HR=hazard ratio; LOS: length of hospital stay; NRS: numeric rating scale; R/T: radiotherapy. †On base-10 logarithmic scale; ‡On base-2 logarithmic scale.

Supplementary Table 2: Forward model selection analyses for cancer recurrence and all-cause mortality

Cancer recurrence	HR (95% CI)	<i>p</i>	All-cause mortality	HR (95% CI)	<i>p</i>
Bupivacaine dose, mg	1.000 (0.997 – 1.002)	0.832	Bupivacaine dose, mg	1.007 (1.000 – 1.014)	0.037
Body mass index, kg·m⁻²	0.902 (0.826 – 0.986)	0.022	Age, year	1.083 (1.029 – 1.140)	0.002
Diabetes mellitus	3.112 (1.544 – 6.272)	0.001	Pretreatment CEA, µg·L⁻¹†	2.586 (1.051 – 6.359)	0.039
Cancer stage		0.005	Cancer stage		0.003
II vs. I	2.588 (1.261 – 5.313)	0.010	II vs. I	6.806 (1.901 – 24.362)	0.003
III vs. I	3.208 (1.427 – 7.216)	0.005	III vs. I	7.508 (2.078 – 27.128)	0.002
Tumor differentiation		0.002	Type of surgery		0.029
Moderate vs. good	3.165 (0.406 – 24.636)	0.271	Sublobar resection (reference)		
Poor vs. good	8.314 (1.062 – 65.070)	0.044	Lobectomy	0.344 (0.083 – 1.427)	0.142
Postoperative C/T	2.188 (1.067 – 4.489)	0.033	Bilobectomy or pneumonectomy	2.561 (0.209 – 31.393)	0.462
Postoperative R/T	3.086 (1.175 – 8.104)	0.022	Intraoperative blood loss, mL‡	1.408 (1.042 – 1.902)	0.026
			Postoperative LOS, day	1.084 (1.017 – 1.156)	0.013

CEA=carcinoembryonic antigen; C/T=chemotherapy; CI=confidence interval; HR=hazard ratio; LOS=length of hospital stay; R/T=radiotherapy. †On base-10 logarithmic scale; ‡On base-2 logarithmic scale.