

**S1 Table.** Univariate analysis for the prognostic factors of overall survival, local relapse-free survival, regional relapse-free survival, distant metastasis-free survival, and disease-free survival in the training cohort (n=6,751).

Characteristic	OS		DMFS		DFS		LRFS		RRFS	
	HR (95% CI)	p-value	HR (95% CI)	p-value	HR (95% CI)	p-value	HR (95% CI)	p-value	HR (95% CI)	p-value
Sex		0.006		<0.001		<0.001		0.635		0.021
Female	1.00(1.00-, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)	
Male	1.38(1.10, 1.73)		1.62(1.26, 2.07)		1.36(1.14, 1.62)		1.08(0.79, 1.48)		1.54(1.07, 2.23)	
Age, year		<0.001		0.004		<0.001		0.493		0.813
≤30	1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)	
31-40	1.57(0.94, 2.62)		1.50(0.94, 2.39)		1.26(0.89, 1.78)		1.03(0.56, 1.89)		0.85(0.47, 1.52)	
41-50	1.85(1.13, 3.02)		1.46(0.93, 2.29)		1.35(0.97, 1.88)		1.33(0.75, 2.36)		0.99(0.57, 1.71)	
51-60	2.47(1.46, 4.19)		1.84(1.13, 3.01)		1.68(1.17, 2.42)		1.47(0.78, 2.78)		1.05(0.56, 1.99)	
≥61	4.91(2.97, 8.11)		2.28(1.40, 3.72)		2.41(1.69, 3.44)		1.16(0.58, 2.31)		1.16(0.61, 2.22)	
Histology (WHO)		0.082		0.077		0.035		0.237		0.24
Type I-II	1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)	
Type III	0.66(0.41, 1.05)		0.64(0.39, 1.05)		0.66(0.44, 0.97)		0.65(0.32, 1.32)		0.64(0.30, 1.35)	
Smoking history		<0.001		<0.001		<0.001		0.004		0.045
No	1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)	
Yes	1.42(1.18, 1.72)		1.39(1.15, 1.70)		1.43(1.23, 1.66)		1.51(1.14, 2.00)		1.36(1.01, 1.83)	
Drinking history		0.295		0.195		0.127		0.872		0.048
No	1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)	
Yes	1.15(0.88, 1.50)		1.20(0.91, 1.57)		1.18(0.95, 1.45)		1.03(0.69, 1.55)		1.47(1.00, 2.16)	
Family of cancer		0.586		0.296		0.035		0.217		0.298
No	1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)	
Yes	0.94(0.76, 1.17)		0.89(0.71, 1.11)		0.83(0.70, 0.99)		0.81(0.59, 1.13)		0.83(0.59, 1.18)	

T stage		<0.001		<0.001		<0.001		<0.001		0.011
T1	1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)	
T2	1.86(1.18, 2.91)		1.61(1.06, 2.44)		1.97(1.42, 2.72)		3.36(1.52, 7.46)		2.45(1.43, 4.20)	
T3	2.64(1.80, 3.87)		2.06(1.45, 2.93)		2.22(1.68, 2.95)		4.33(2.10, 8.93)		1.63(0.99, 2.69)	
T4	4.86(3.29, 7.18)		2.85(1.97, 4.12)		3.58(2.67, 4.79)		9.42(4.55, 19.49)		1.66(0.95, 2.90)	
N stage		<0.001		<0.001		<0.001		0.002		<0.001
N0	1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)	
N1	2.64(1.71, 4.06)		3.09(1.90, 5.01)		2.60(1.88, 3.59)		2.39(1.37, 4.17)		3.12(1.51, 6.46)	
N2	4.54(2.91, 7.09)		5.29(3.22, 8.68)		3.90(2.78, 5.47)		3.20(1.78, 5.75)		4.98(2.36, 10.50)	
N3	6.15(3.89, 9.72)		7.59(4.58, 12.58)		5.02(3.53, 7.12)		2.55(1.32, 4.93)		7.27(3.40, 15.56)	
HGB, g/L <sup>b</sup>		0.610		0.860		0.74		0.322		0.088
<113	1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)	
113-151	1.12(0.66, 1.92)		0.89(0.54, 1.48)		1.19(0.77, 1.84)		2.40(0.76, 7.54)		1.11(0.45, 2.72)	
≥151	1.02(0.59, 1.76)		0.93(0.55, 1.56)		1.19(0.76, 1.86)		2.40(0.76, 7.65)		1.54(0.62, 3.82)	
ALB		<0.001		<0.001		<0.001		0.085		0.093
<40	1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)		1.00(1.00, 1.00)	
≥40	0.54(0.40, 0.71)		0.58(0.43, 0.78)		0.65(0.51, 0.82)		0.67(0.43, 1.06)		0.66(0.41, 1.07)	

ALB, albumin; CI, confidence interval; DFS, disease-free survival; DMFS, distant metastasis-free survival; HGB, hemoglobin; HR, hazard ratio; LRFS, local relapse-free survival; OS, overall survival; RRFS, regional relapse-free survival; WHO, World Health Organization.