

Supplementary Table 2. Univariable and multivariable Cox regression analysis for OS after IPTW

Characteristic	Univariable analysis		Multivariable analysis	
	HR (95% CI)	P-value	HR (95% CI)	P-value
Nivolumab (vs. regorafenib)	0.604 (0.326–1.119)	0.11	0.340 (0.177–0.653)	0.001
Age (per year increase)	0.978 (0.952–1.004)	0.10		
Male sex (vs. female)	2.571 (1.168–5.660)	0.02	2.875 (1.058–7.812)	0.04
Etiology of HCC, HBV (vs. others)	2.008 (0.961–4.202)	0.06		
Child-Pugh score		<0.001		<0.001
5	1 (reference)		1 (reference)	
6	2.281 (1.160–4.487)	0.02	2.594 (1.350–4.984)	0.004
7–9	14.201 (6.206–32.497)	<0.001	12.071 (5.597–26.032)	<0.001
Vascular invasion, yes (vs. no)	2.104 (1.275–3.471)	0.01		
Biliary invasion, yes (vs. no)	2.461 (0.915–6.624)	0.07		
Intrahepatic tumor burden		0.01		
None	1 (reference)			
<50%	2.247 (0.990–5.098)	0.53		
≥50%	4.592 (1.644–12.830)	0.004		
Extrahepatic metastasis, yes (vs. no)	0.522 (2.853–17.905)	0.23		
Portal hypertension, yes (vs. no)	2.171 (1.182–3.988)	0.01	1.708 (0.983–2.968)	0.06
BCLC stage C (vs. B)	0.811 (0.283–2.325)	0.70		
AST (per IU/L)	1.009 (1.003–1.015)	0.004	1.006 (1.000–1.011)	0.04
ALT (per IU/L)	1.006 (1.001–1.010)	0.02		
ALP (per IU/L)	1.002 (1.002–1.003)	<0.001		
Creatinine (per mg/dL)	0.185 (0.029–1.167)	0.07		
Platelet count (per $\times 10^9/L$)	1.001 (0.997–1.005)	0.72		
AFP ≥ 400 ng/mL	1.435 (0.769–2.678)	0.26		
PIVKA $\geq 1,000$ mAU/mL	2.711 (1.442–5.095)	0.002		
MoRAL ≥ 314.8	2.910 (1.517–5.582)	0.001	2.168 (1.118–4.205)	0.02

P values were determined using Cox proportional hazards regression models. $P < 0.05$ indicated a significant difference.

OS, overall survival; IPTW, inverse probability treatment weighting; HR, hazards ratio; CI, confidence interval; HCC, hepatocellular carcinoma; HBV, hepatitis B virus; BCLC, Barcelona Clinic Liver Cancer; AST, aspartate aminotransferase; ALT, alanine aminotransferase; ALP, alkaline phosphatase; AFP, alpha-fetoprotein; PIVKA, protein induced by vitamin K absence or antagonist; MoRAL, model to predict tumor recurrence after living donor liver transplantation.