

# Supplementary materials

**Table S1** Baseline characteristics of cohort patients according to bilirubin level

	TBIL			DBIL			IBIL			P value
	Low	High	P value	Low	High	P	Low	High	P value	
Gender (%)			1.000			0.941			0.941	
Female	6 (50.0)	6 (50.0)		6 (50.0)	6 (50.0)		6 (50.0)	6 (50.0)		
Male	44 (50.0)	44 (50.0)		45 (51.1)	43 (48.9)		45 (51.1)	43 (48.9)		
Age (years, mean ± SD)	50.22 ± 11.94	47.72 ± 12.08	0.300	48.67 ± 12.15	49.29 ± 11.99	0.798	52.63 ± 10.85	45.16 ± 12.08	0.002	
HBV (%)	49 (49.5)	50 (50.5)	1.000	50 (50.5)	49 (49.5)	1	50 (50.5)	49 (49.5)	1	
Alcohol drinkers (%)	10 (55.6)	8 (44.4)	0.603	11 (61.1)	7 (38.9)	0.343	8 (44.4)	10 (55.6)	0.539	
Portal vein or inferior vena cava invasion	24(44.4)	30(55.6)	0.229	24(44.4)	30(55.6)	0.229	24(44.4)	30(55.6)	0.229	
EM* (%)			0.056			0.173			0.731	
0	27 (43.5)	35 (56.5)		29(46.8)	33(53.2)		31 (50.0)	31 (50.0)		
1	11 (55.0)	9 (45.0)		12(60.0)	8(40.0)		9 (45.0)	11 (55.0)		
2	8 (88.9)	1 (11.1)		7(77.8)	2(22.2)		6 (66.7)	3 (33.3)		
3	4 (44.4)	5 (55.6)		3(33.3)	6(66.7)		5 (55.6)	4 (44.4)		
Ascites (%)			0.081			0.012			0.332	
None	36(59.0)	25(41.0)		39 (63.9)	22 (36.1)		35 (57.4)	26 (42.6)		
Small	8(34.8)	15(65.2)		7 (30.4)	16 (69.6)		9 (39.1)	14 (60.9)		
Moderate	3(27.3)	8(72.7)		3 (27.3)	8 (72.7)		4 (36.4)	7 (63.6)		
Large	3(60.0)	2(40)		2 (40.0)	3 (60.0)		3 (60.0)	2 (40.0)		
Smokers (%)	17 (43.6)	22 (56.4)	0.305	18 (46.2)	21 (53.8)	0.438	19 (48.7)	20 (51.3)	0.715	
Child-Pugh (%)			< 0.001			< 0.001			0.001	
A	35 (72.9)	13 (27.1)		38 (79.2)	10 (20.8)		32 (66.7)	16 (33.3)		
B	14 (33.3)	28 (66.7)		12 (28.6)	30 (71.4)		18 (42.9)	24 (57.1)		
C	1 (10.0)	9 (90.0)		1 (10.0)	9 (90.0)		1 (10.0)	9 (90.0)		

Table S1 Continued

	TBIL			DBIL			IBIL		
	Low	High	P value	Low	High	P	Low	High	P value
BCLC (%)			0.478			0.487			0.309
A	0 (0)	1 (100)		0(0)	1 (100.0)		1 (100)	0(0)	
B	16 (48.5)	17 (51.5)		17(51.5)	16(48.5)		19(57.6)	14(42.4)	
C	34 (51.5)	32 (48.5)		34(51.5)	32(48.5)		31(47.0)	35(53.0)	
HCC (%)			0.002			0.002			0.009
Initial HCC	48 (56.5)	37 (43.5)		49(57.6)	36(42.4)		48 (56.5)	37 (43.5)	
Recurrent HCC	2 (13.3)	13 (86.7)		2(13.3)	13(86.7)		3 (20.0)	12 (80.0)	
TBIL ( $\mu\text{mol/L}$ , median $\pm$ IR)	11.55 $\pm$ 5.20	47.40 $\pm$ 67.70	< 0.001	11.60 $\pm$ 5.40	49.50 $\pm$ 67.50	< 0.001	11.70 $\pm$ 5.80	44.0 $\pm$ 72.8	< 0.001
DBIL ( $\mu\text{mol/L}$ , median $\pm$ IR)	5.25 $\pm$ 2.7	27.10 $\pm$ 44.80	< 0.001	5.20 $\pm$ 2.60	27.10 $\pm$ 46.7	< 0.001	5.40 $\pm$ 4.80	23.80 $\pm$ 51.7	< 0.001
IBIL ( $\mu\text{mol/L}$ , median $\pm$ IR)	6.35 $\pm$ 3.0	19.10 $\pm$ 17.20	< 0.001	6.7 $\pm$ 4.20	18.65 $\pm$ 19.0	< 0.001	6.50 $\pm$ 3.30	20.2 $\pm$ 16.80	< 0.001
AFP (ng/mL, median $\pm$ IR)	392 $\pm$ 7669	773.50 $\pm$ 22464	0.325	609.8 $\pm$ 9312	487.52 $\pm$ 16773	0.743	241 $\pm$ 2781	1201 $\pm$ 38840	0.004
ALT (median $\pm$ IR)	33.50 $\pm$ 32.0	76 $\pm$ 72	0.001	34 $\pm$ 35	76 $\pm$ 66	0.001	35.0 $\pm$ 35	76 $\pm$ 63	0.002
AST (median $\pm$ IR)	48.50 $\pm$ 48	179 $\pm$ 208	< 0.001	45 $\pm$ 52	165.5 $\pm$ 181	< 0.001	52.5 $\pm$ 51	179 $\pm$ 208	< 0.001

**Table S2** Statistical analysis of serum bilirubin levels

	<i>n</i>	Minimum	Maximum	Mean	Median	IR
TBIL	100	5	300.4	42.27	19.95	35.9
DBIL	100	1.8	173.6	25	9.8	21.3
IBIL	100	1.2	133.1	17.19	10.2	13.4

**Table S3** Cox regression analysis of characteristics associated with overall survival time

Baseline covariate	Univariate model		<i>P</i> value	Multivariate model		<i>P</i> value
	HR	95%CI		HR	95%CI	
Smoking (yes vs. no)	2.349	1.412–3.908	0.001	2.648	1.571–4.461	< 0.001
Ascites (yes vs. no)	3.079	1.820–5.212	< 0.001	2.286	1.304–4.009	0.004
Child Pugh (B vs. A)	1.883	1.097–3.232	0.022			
Child Pugh (C vs. A)	3.036	1.401–6.577	0.005			
BCLC (C vs. B)	2.47	1.373–4.445	0.003			
EM (yes vs. no)	1.702	1.023–2.834	0.041	1.693	1.012–2.835	0.045
TBIL	1.01	1.006–1.014	< 0.001	1.008	1.004–1.013	< 0.001
DBIL	1.014	1.008–1.020	< 0.001			
IBIL	1.023	1.013–1.033	< 0.002			
AST	1.001	1.0002–1.002	0.016			