

Supplementary Table 1. Comparisons of preoperative and operative variables among patients with different gross subtypes of HCC.

	Levels	I (N=118)	II (N=129)	III (N=101)	IV (N=52)	P
Sex	Female	29 (24.6%)	33 (25.6%)	22 (21.8%)	6 (11.5%)	0.203
Age	Mean ± SD	58.6 ± 10.3	58.4 ± 10.3	57.5 ± 10.6	54.2 ± 9.5	0.061
ASA stage	I	3 (2.5%)	0 (0%)	1 (1%)	2 (3.8%)	0.331
	II	87 (73.7%)	105 (81.4%)	80 (79.2%)	42 (80.8%)	
	III	28 (23.7%)	24 (18.6%)	20 (19.8%)	8 (15.4%)	
Smoking	yes	44 (37.3%)	59 (45.7%)	42 (41.6%)	29 (55.8%)	0.142
Drinking	yes	41 (34.7%)	48 (37.2%)	27 (26.7%)	20 (38.5%)	0.326
BMI, kg/m ²	Median (IQR)	24.0 (21.8 to 26.6)	23.5 (21.7 to 26.4)	24.0 (22.0 to 26.9)	24.1 (22.3 to 26.1)	0.912
Macrovascular invasion	yes	3 (2.5%)	8 (6.2%)	5 (5%)	25 (48.1%)	<0.001 ⁺
Microvascular invasion	M0	90 (76.3%)	56 (43.4%)	51 (50.5%)	6 (11.5%)	<0.001 ⁺
	M1	22 (18.6%)	53 (41.1%)	37 (36.6%)	19 (36.5%)	
	M2	6 (5.1%)	20 (15.5%)	13 (12.9%)	27 (51.9%)	
Bile duct invasion	yes	2 (1.7%)	2 (1.6%)	4 (4%)	11 (21.2%)	<0.001 ⁺
Satellite	yes	5 (4.2%)	16 (12.4%)	16 (15.8%)	21 (40.4%)	<0.001 ⁺
AFP value	AFP≥400	22 (18.6%)	28 (21.7%)	25 (24.8%)	15 (28.8%)	0.467
Largest tumor size	Median (IQR)	30.0 (23.0 to 47.0)	37.0 (25.0 to 49.0)	45.0 (30.0 to 75.0)	57.5 (40.5 to 85.0)	<0.001
Presentation	Symptomatic	21 (17.8%)	26 (20.2%)	23 (22.8%)	20 (38.5%)	0.023 [#]
ES-grade	I	9 (7.6%)	1 (0.8%)	4 (4%)	1 (1.9%)	<0.001 ⁺
	II	97 (82.2%)	103 (79.8%)	74 (73.3%)	31 (59.6%)	
	III	12 (10.2%)	25 (19.4%)	21 (20.8%)	18 (34.6%)	
	IV	0 (0%)	0 (0%)	2 (2%)	2 (3.8%)	
Tumor envelope	Non/Incomplete	58 (49.2%)	94 (72.9%)	61 (60.4%)	45 (86.5%)	<0.001 ⁺
Preoperative neoadjuvant	no	118 (100%)	125 (96.9%)	100 (99%)	51 (98.1%)	0.233
TNM staging	I	90 (76.3%)	64 (49.6%)	54 (53.5%)	4 (7.7%)	<0.001 ⁺
	II	22 (18.6%)	54 (41.9%)	41 (40.6%)	23 (44.2%)	
	III	6 (5.1%)	11 (8.5%)	6 (5.9%)	25 (48.1%)	
BCLC staging	A	106 (89.8%)	110 (85.3%)	87 (86.1%)	20 (38.5%)	<0.001 ⁺
	C	12 (10.2%)	19 (14.7%)	14 (13.9%)	32 (61.5%)	
pre-ALT	Median (IQR)	27.0 (19.4 to 41.8)	29.5 (17.5 to 48.8)	30.8 (20.3 to 53.8)	35.1 (24.5 to 64.9)	0.095
pre-AST	Median (IQR)	30.6 (23.2 to 40.7)	29.3 (22.6 to 40.8)	32.0 (24.7 to 48.2)	37.3 (24.0 to 52.5)	0.150
pre-AKP	Median (IQR)	78.2 (64.5 to 96.3)	83.8 (66.7 to 103.1)	88.1 (67.7 to 116.2)	88.6 (68.7 to 113.8)	0.040
pre-γGT	Median (IQR)	42.8 (26.8 to 75.3)	48.0 (30.7 to 83.4)	55.5 (31.6 to 92.0)	70.2 (36.1 to 136.6)	0.021
Cirrhosis	yes	59 (50%)	64 (49.6%)	59 (58.4%)	36 (69.2%)	0.061 [#]
HBV (+)	yes	75 (63.6%)	89 (69%)	68 (67.3%)	48 (92.3%)	0.002 [#]
HCV (+)	yes	23 (19.5%)	14 (10.9%)	13 (12.9%)	2 (3.8%)	0.032 [#]
Child-Pugh grade	A	112 (94.9%)	120 (93%)	93 (92.1%)	49 (94.2%)	0.845
	B	6 (5.1%)	9 (7%)	8 (7.9%)	3 (5.8%)	
Intraoperative blood transfusion	yes	25 (21.2%)	39 (30.2%)	29 (28.7%)	21 (40.4%)	0.075 [#]
Operation time	Median (IQR)	184.5 (145.0 to 233.0)	200.0 (155.0 to 242.0)	203.0 (170.0 to 240.0)	215.0 (158.5 to 256.5)	0.079
Postoperative adjuvant therapy	yes	29 (24.6%)	53 (41.1%)	41 (40.6%)	30 (57.7%)	<0.001 ⁺

+: Linear-by-linear association, $P < 0.001$; #: $P < 0.05$ and $P \geq 0.001$

ASA, American Society of Anesthesiologists; BMI, Body mass index; AFP, Alpha-fetoprotein; ALT, Alanine aminotransferase; AST, Aspartate aminotransferase; AKP, Alkaline phosphatase; γGT, γ-glutamyl transpeptidase; HBV, Hepatitis B virus; HCV, Hepatitis C virus; IQR, Interquartile range.