

Table S1. Cause-specific mortality rate of recipients after liver transplantation

Causes	
Infection	
Sepsis	31 (43.1)
Pneumonia	20 (27.8)
Cancer [*]	9 (12.5)
Cardio- or Cerebrovascular events	
Cardiovascular	2 (2.8)
Cerebrovascular	4 (5.6)
Other [†]	6 (8.3)

Values are number of patient (%).

^{*}, Progression of underlying hepatocellular carcinoma; [†], Includes Hemorrhagic shock due to variceal bleeding, otherwise unknown

Table S2. Cox proportional hazard model of mortality after liver transplantation after excluding patient diagnosed opportunistic infection between surgery and postoperative NLR measurement

	Univariate analysis			Multivariate analysis		
	HR	95% CI	<i>P</i> -value	HR	95% CI	<i>P</i> -value
BMI, kg/m ²	0.88	0.82–0.94	<0.001	0.90	0.84–0.97	0.005
RRT	1.83	0.93–3.57	0.079			
MELD score	1.03	1.01–1.05	0.005			
deceased donor	1.99	1.16–3.41	0.013			
hemoglobin, g/dl	0.88	0.78–0.98	0.022			
platelet count, 10 ³ /μl	0.995	0.99–1.00	0.086	0.99	0.99–1.00	0.052
C-reactive protein, mg/L	1.01	1.00–1.02	0.040			
Pre-and postoperative NLR-based group						
Normal		Ref			Ref	
Elevated	0.82	0.11–6.06	0.842	0.71	0.10–5.31	0.738
Normalized	2.34	1.35–4.04	0.002	2.18	1.23–3.86	0.007
Persistent	6.25	3.13–12.52	<0.001	4.96	2.34–10.51	<0.001

NLR: neutrophil-to-lymphocyte ratio; HR: Hazard ratios; CI: Confidence intervals; BMI: body mass index; RRT: renal replacement therapy; MELD: Model for End-stage Liver Disease;

Table S3. Comparison between baseline demographic, clinical, and laboratory data between the Normal and Normalized groups

	Normal group (n = 194)	Normalized group (n = 144)	<i>P</i> -value
Age, years	58 (51, 63)	56 (49, 63)	0.073
Sex, male	134 (69.1)	102 (70.8)	0.727
BMI, kg/m ²	24.0 (21.9, 26.9)	23.8 (21.1, 25.5)	0.108
hypertension	45 (23.2)	39 (27.1)	0.413
diabetes mellitus	71 (36.6)	45 (31.3)	0.306
chronic kidney disease	4 (2.1)	14 (9.7)	0.002
RRT	5 (2.6)	29 (20.1)	<0.001
MELD score	10.4 (7.5, 15.8)	21.6 (11.8, 34.7)	<0.001
deceased donor	53 (17.4)	22 (30.6)	0.012
hemoglobin, g/dl	11.2 (9.5, 12.8)	9.2 (8.0, 10.9)	<0.001
platelet count, 10 ³ /μl	81 (57, 110)	66 (46, 97)	0.003
glucose, mg/dl	106 (91, 145)	120 (95, 157)	0.086
creatinine, mg/dl	0.72 (0.59, 0.91)	0.96 (0.66, 1.68)	<0.001
eGFR, ml/min/ 1.73m ²	106.0 (84.4, 130.5)	72.7 (39.9, 115.9)	<0.001
C-reactive protein, mg/l	2.0 (0.8, 5.7)	9.7 (3.1, 24.0)	<0.001
alpha-fetoprotein, ng/dl	4.3 (2.7, 10.1)	4.9 (2.4, 13.0)	0.883
albumin, g/dl	3.3 (2.8, 3.7)	3.0 (2.7, 3.4)	0.003

Values are number of patients (%) or median (interquartile range). BMI: body mass index; RRT: renal replacement therapy; MELD: Model for End-stage Liver Disease; eGFR, estimated glomerular filtration rate.

Table S4. Cox proportional hazard model of 3-year mortality after liver transplantation in the Normal and Normalized groups

	Univariate analysis			Multivariate analysis		
	HR	95% CI	<i>P</i> -value	HR	95% CI	<i>P</i> -value
chronic kidney disease	1.57	0.57–4.34	0.387			
RRT	1.94	0.95–3.96	0.070			
MELD score	1.04	1.02–1.06	<0.001	1.02	1.00–1.05	0.08
deceased donor	2.27	1.27–4.04	0.005			
hemoglobin, g/dl	0.86	0.76–0.98	0.022			
platelet count, 10 ³ /μl	0.997	0.99–1.00	0.334			
creatinine, mg/dl	1.12	0.90–1.40	0.323			
eGFR, ml/min/ 1.73m ²	0.996	0.99–1.00	0.123			
albumin, g/dl	0.89	0.55–1.42	0.614			
C-reactive protein, mg/l	1.01	1.00–1.02	0.053			
Pre-and postoperative NLR-based group						
Normal		Ref			Ref	
Normalized	2.38	1.38–4.11	0.002	1.93	1.03–3.62	0.040

HR: Hazard ratios; CI: Confidence intervals; RRT: renal replacement therapy; MELD: Model for End-stage Liver Disease; eGFR: estimated glomerular filtration rate; NLR: neutrophil-to-lymphocyte ratio.