Supplementary

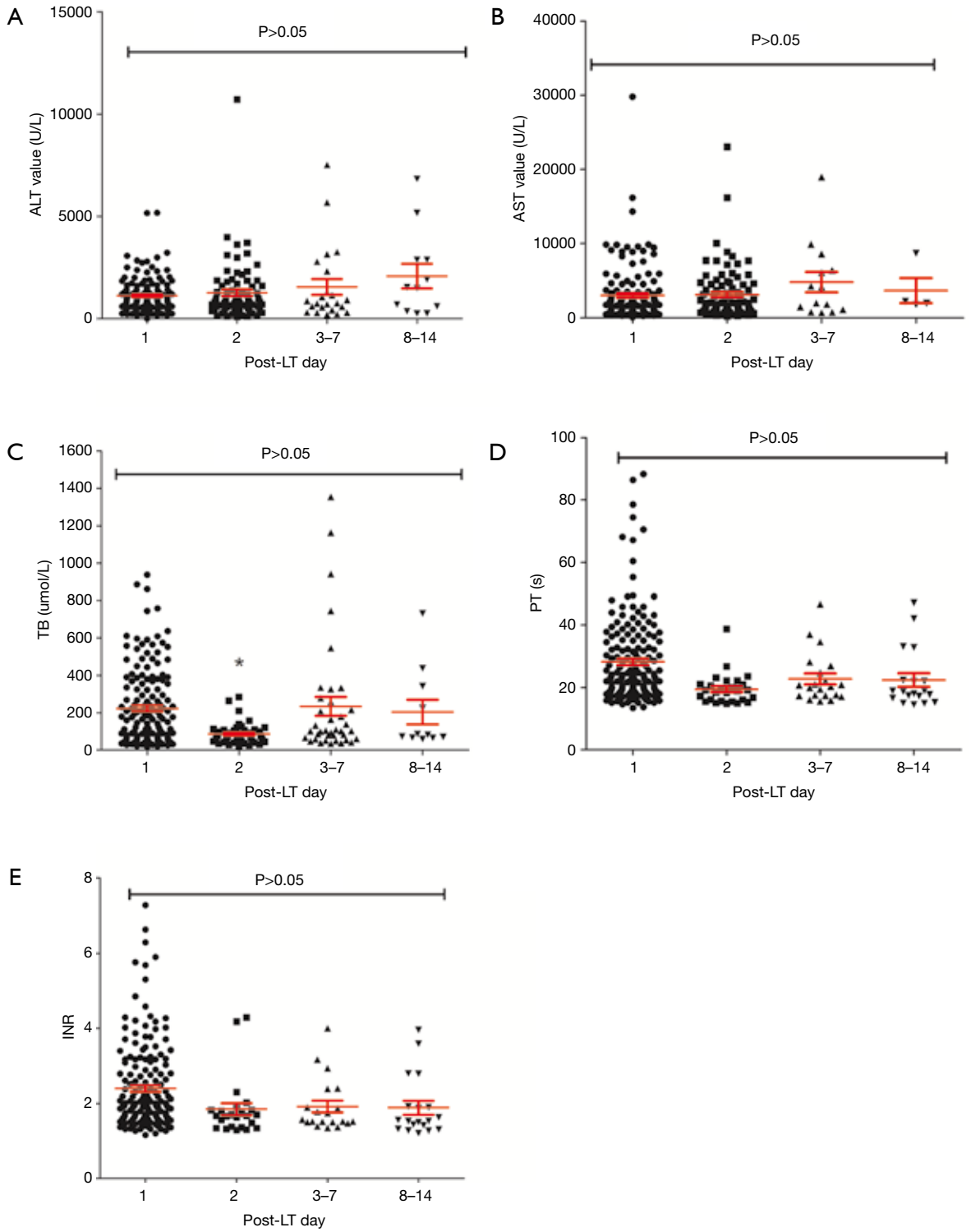

Figure S1 Peak values of biochemical indicators occurred in different post-operational time. (A) Peak ALT value occurred in different post-operational time; (B) peak AST value occurred in different post-operational time; (C) peak TB value occurred in different post-operational time; (D) peak PT value occurred in different post-operational time; (E) peak INR occurred in different post-operational time. Comparison was performed in different groups by one-way ANOVA. * represented significant difference compared to other groups. ALT, alanine aminotransferase; AST, aspartate aminotransferase; TB, total bilirubin; PT, prothrombin time; INR, international normalized ratio; LT, liver transplantation.

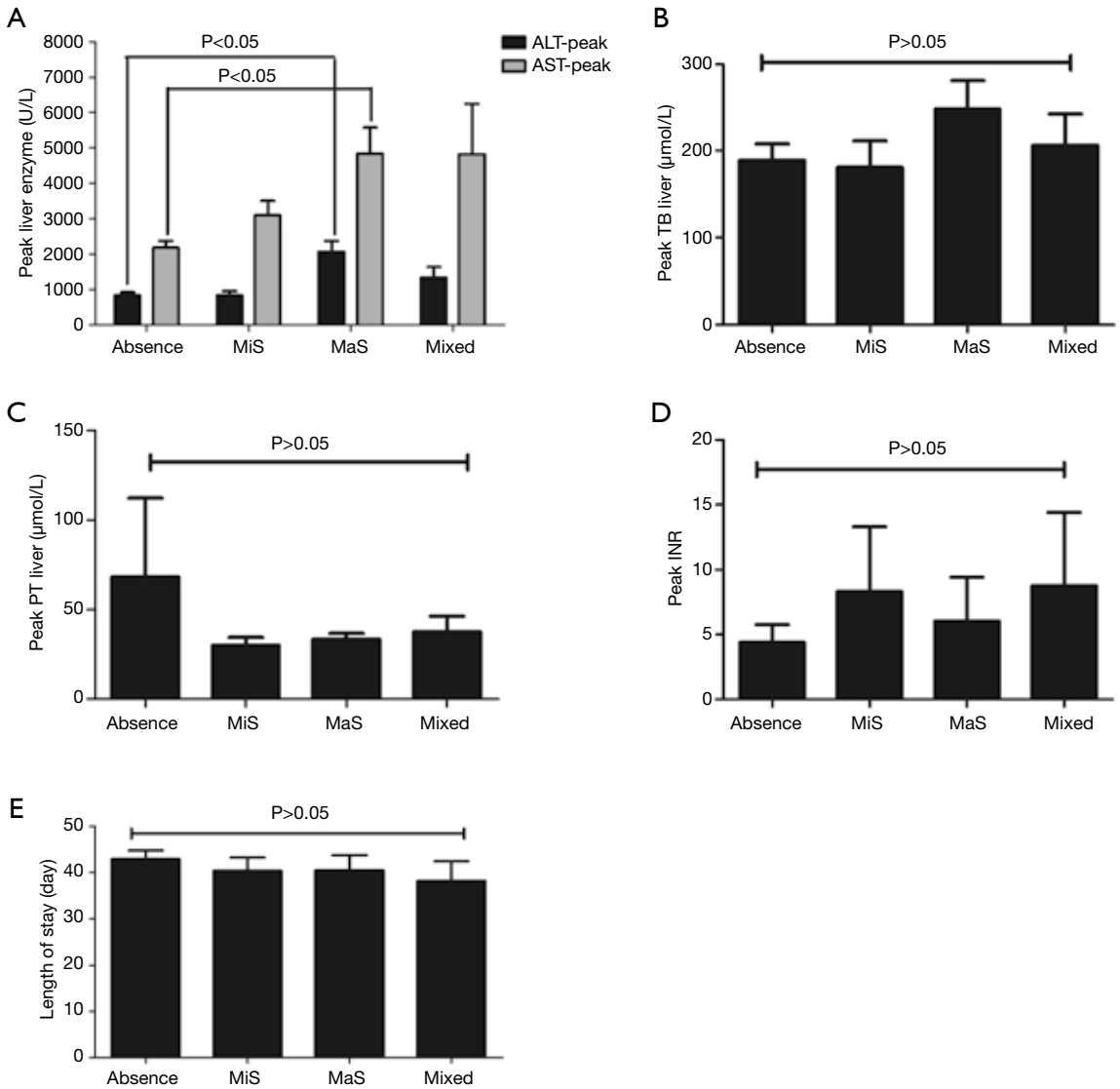

Figure S2 Post-transplant outcomes categorized by steatosis type. (A) Comparison of post-transplant peak ALT/AST level in patients categorized by steatosis type; (B) comparison of post-transplant peak TB level in patients categorized by steatosis type; (C) comparison of post-transplant peak PT level in patients categorized by steatosis type; (D) comparison of post-transplant peak INR in patients categorized by steatosis type; (E) comparison of post-transplant hospitalization/ICU stay in patients categorized by steatosis type. One-way ANOVA was compared for biochemical indicators; Mann-Whitney U test was compared for length of in hospitalization. ALT, alanine aminotransferase; ICU, intensive care unit; TB, total bilirubin; PT, prothrombin time; INR, international normalized ratio.

Table S1 Risk factors on peak aspartate aminotransferase after liver transplantation

Variable	Univariate analysis		Multivariate analysis	
	OR (95% CI)	P value	OR (95% CI)	P value
Mixed steatosis (yes/no[a])	3.40 (1.20–9.67)	0.02	3.03 (0.88–10.4)	0.08
MiS (yes/no[a])	1.20 (0.66–2.19)	0.55		
MaS (yes/no[a])	1.76 (0.93–3.35)	0.09		
Age (years)	1.00 (0.97–1.02)	0.80	1.00 (0.97–1.04)	0.82
Gender (F/M)	1.10 (0.56–2.16)	0.78	1.78 (0.73–4.30)	0.20
Blood type (A/B/O/AB)	1.00 (0.78–1.30)	0.98		
BMI (kg/m^2)	1.05 (0.98–1.14)	0.19		
AFP (ng/mL)/100	1.00 (1.00–1.00)	0.20		
MELD score	1.01 (0.98–1.04)	0.59		
Operation time (hours)	1.00 (0.80–1.25)	0.99		
ALT (U/L)/1,000	12.2 (6.16–24.2)	<0.01	11.9 (5.94–23.7)	<0.01
TB (μmol/L)/100	1.13 (1.00–1.28)	0.05	1.08 (0.93–1.25)	0.35
PT (s)	1.02 (1.01–1.04)	0.02		
INR	1.00 (0.99–1.01)	0.52		
Blood loss (mL)/1,000	1.04 (0.84–1.28)	0.72		
pRBC (U)	1.00 (0.96–1.05)	0.85		
FFP (mL)/1,000	0.87 (0.54–1.42)	0.58		
PCC (U)	1.00 (0.94–1.05)	0.85		
Height (cm)	1.02 (0.98–1.05)	0.44		
Weight (kg)	1.02 (0.99–1.04)	0.13		
MiS degree				
MiS G1 (yes/no[a])	1.37 (0.64–2.95)	0.42	1.44 (0.67–3.12)	0.35
MiS G2 (yes/no[a])	1.54 (0.89–2.66)	0.12	1.05 (0.49–2.25)	0.91
MiS G3 (yes/no[a])	1.47 (0.82–2.61)	0.20	1.27 (0.54–3.02)	0.58
MaS degree				
MaS G1 (yes/no[a])	1.33 (0.55–3.22)	0.52	0.84 (0.28–2.57)	0.76
MaS G2 (yes/no[a])	2.29 (1.17–4.48)	0.02	2.02 (0.82–4.98)	0.13
MaS G3 (yes/no[a])	1.61 (1.02–2.55)	0.04	1.57 (0.83–2.96)	0.16

Patients were categorized into two groups by mean ALT level (1,800 U/L). Logistic regression was tested for univariate and multivariate analysis; factors significantly associated with peak post-transplant AST level were enrolled into multi-covariate logistic regression analysis. [a], "no" represented the patients received allografts with absence of steatosis (non-steatosis group). G1/G2/G3 respectively represented the steatosis degree (0–10%], (10–20%), and [20%, upper limit]. AFP, alpha fetoprotein; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BMI, body mass index; F, female; INR, international normalized ratio; FFP, fresh frozen plasma; M, male; MaS, macrosteatosis; MELD, model for end-stage liver disease; MiS, microsteatosis; PCC, prothrombin complex concentrate; pRBC, packed red blood cells; PT, prothrombin time; TB, total bilirubin.

Table S2 Risk factors on peak alanine aminotransferase after liver transplantation

Variable	Univariate analysis		Multivariate analysis	
	OR (95% CI)	P value	OR (95% CI)	P value
Mixed steatosis (yes/no[a])	2.51 (0.93–6.76)	0.07		
MiS (yes/no[a])	1.39 (0.76–2.55)	0.29		
MaS (yes/no[a])	1.37 (0.72–2.58)	0.34		
Age (years)	0.99 (0.96–1.01)	0.32	0.99 (0.95–1.02)	0.39
Gender (F/M)	0.66 (0.34–1.30)	0.23	0.39 (0.13–1.15)	0.09
Blood type (A/B/O/AB)	0.97 (0.75–1.25)	0.79		
BMI (kg/m^2)	1.01 (0.93–1.09)	0.86		
AFP (ng/mL)/100	1.00 (0.99–1.01)	0.47		
MELD score	0.99 (0.96–1.02)	0.61		
Operation time (hours)	1.00 (1.00–1.00)	0.36		
AST (U/L)/1,000	3.30 (2.33–4.67)	<0.01	3.28 (2.31–4.64)	<0.01
TB (μmol/L)/100	1.10 (0.97–1.24)	0.14		
PT (s)	1.02 (1.00–1.03)	0.04	1.01 (0.99–1.02)	0.32
INR	1.00 (0.99–1.01)	0.49		
Blood loss (mL)/1,000	1.15 (0.92–1.43)	0.22		
pRBC (U)	0.99 (0.95–1.03)	0.60		
FFP (mL)/1000	1.07 (0.66–1.75)	0.77		
PCC (U)	1.01 (0.96–1.07)	0.66		
Height (cm)	1.03 (0.99–1.07)	0.08		
Weight (kg)	1.01 (0.99–1.04)	0.29		
MiS degree				
MiS G1 (yes/no[a])	1.39 (0.65–2.98)	0.40	1.01 (0.33–3.05)	0.98
MiS G2 (yes/no[a])	1.69 (0.96–2.97)	0.07	1.21 (0.56–2.61)	0.62
MiS G3 (yes/no[a])	1.42 (0.79–2.53)	0.24	1.10 (0.42–2.83)	0.85
MaS degree				
MaS G1 (yes/no[a])	1.20 (0.50–2.90)	0.68	1.22 (0.38–3.94)	0.75
MaS G2 (yes/no[a])	1.79 (0.97–3.31)	0.06	1.01 (0.38–2.65)	0.98
MaS G3 (yes/no[a])	1.35 (0.88–2.08)	0.16	0.55 (0.25–1.21)	0.14

Patients were categorized into two groups by mean ALT level (880 U/L). Logistic regression was tested for univariate and multivariate analysis; factors significantly associated with post-transplant ALT level were enrolled into multi-covariate logistic regression analysis. [a], "no" represented the patients received allografts with absence of steatosis (non-steatosis group). G1/G2/G3 respectively represented the steatosis degree (0–10%], (10–20%), and [20%, upper limit]. AFP, alpha fetoprotein; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BMI, body mass index; F, female; INR, international normalized ratio; FFP, fresh frozen plasma; M, male; MaS, macrosteatosis; MELD, model for end-stage liver disease; MiS, microsteatosis; PCC, prothrombin complex concentrate; pRBC, packed red blood cells; PT, prothrombin time; TB, total bilirubin.

Table S3 Risk factors on length of hospitalization for recipients after liver transplantation

Variable	Univariate analysis		Multivariate analysis	
	OR (95% CI)	P value	OR (95% CI)	P value
Mixed steatosis (yes/no[a])	1.01 (0.40–2.59)	0.98		
MiS (yes/no[a])	0.76 (0.41–1.40)	0.38		
MaS (yes/no[a])	1.10 (0.57–2.10)	0.79		
Age (years)	1.02 (0.99–1.05)	0.13		
Gender (F/M)	1.67 (0.84–3.32)	0.14		
Blood type (A/B/O/AB)	1.19 (0.92–1.55)	0.18		
BMI (kg/m^2)	1.04 (0.96–1.12)	0.38		
AFP (ng/mL)/100	1.00 (1.00–1.00)	0.83		
MELD score	1.04 (1.00–1.08)	0.03	1.03 (0.98–1.06)	0.18
Operation time (hours)	0.88 (0.70–1.11)	0.27		
ALT (U/L)/1,000	0.89 (0.72–1.10)	0.29		
AST (U/L)/1,000	0.96 (0.89–1.03)	0.26		
TB (μmol/L)/100	1.10 (0.97–1.24)	0.14		
PT (s)	1.00 (1.00–1.00)	0.56		
INR	1.00 (0.99–1.01)	0.62		
Blood loss (mL)/1,000	0.81 (0.64–1.08)	0.80		
pRBC (U)	0.99 (0.95–1.03)	0.72		
FFP (mL)/1,000	1.31 (0.80–2.16)	0.28		
PCC (U)	1.08 (1.01–1.14)	0.02	1.08 (1.01–1.15)	0.03
Height (cm)	0.95 (0.92–0.99)	0.02	0.96 (0.91–1.01)	0.11
Weight (kg)	1.00 (0.97–1.02)	0.68		
MiS degree				
MiS G1 (yes/no[a])	0.57 (0.26–1.26)	0.17	0.17 (0.56–0.25)	1.27
MiS G2 (yes/no[a])	1.26 (0.73–2.17)	0.41	1.15 (0.66–2.02)	0.62
MiS G3 (yes/no[a])	0.81 (0.45–1.44)	0.47	0.77 (0.43–1.38)	0.38
MaS degree				
MaS G1 (yes/no[a])	1.37 (0.56–3.36)	0.50	1.39 (0.55–3.50)	0.48
MaS G2 (yes/no[a])	1.21 (0.67–2.21)	0.53	1.17 (0.61–2.21)	0.64
MaS G3 (yes/no[a])	0.64 (0.38–1.09)	0.10	0.63 (0.37–1.08)	0.09

Patients were categorized into two groups by median length of hospitalization (37 days). Logistic regression was tested for univariate and multivariate analysis; factors significantly associated with length of hospitalization were enrolled into multi-covariate logistic regression analysis. [a], "no" represented the patients received allografts with absence of steatosis (non-steatosis group). G1/G2/G3 respectively represented the steatosis degree (0–10%], (10–20%), and [20%, upper limit]. AFP, alpha fetoprotein; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BMI, body mass index; F, female; INR, international normalized ratio; FFP, fresh frozen plasma; M, male; MaS, macrosteatosis; MELD, model for end-stage liver disease; MiS, microsteatosis; PCC, prothrombin complex concentrate; pRBC, packed red blood cells; PT, prothrombin time; TB, total bilirubin.

Table S4 Risk factors on 90-day patient post-transplant survival

Variable	Univariate analysis		Multivariate analysis	
	OR (95% CI)	P value	OR (95% CI)	P value
Mixed steatosis (yes/no[a])	0.65 (0.14–2.92)	0.57		
MiS (yes/no[a])	0.84 (0.35–2.05)	0.71		
MaS (yes/no[a])	3.45 (1.60–7.45)	<0.01	2.72 (1.15–6.45)	0.02
Age (years)	1.02 (0.98–1.05)	0.43		
Gender (F/M)	1.03 (0.40–2.68)	0.94		
Blood type (A/B/O/AB)	1.22 (0.84–1.79)	0.30		
BMI (kg/m^2)	1.03 (0.92–1.14)	0.61		
AFP (ng/mL)/100	1.00 (0.97–1.03)	0.93		
MELD score	1.01 (0.96–1.07)	0.59		
Operation time (hours)	1.37 (1.01–1.85)	0.04		
ALT (U/L)/1,000	1.46 (1.14–1.88)	<0.01		
AST (U/L)/1,000	1.08 (1.00–1.18)	0.06		
TB (μmol/L)/100	1.35 (1.16–1.57)	<0.01	1.34 (1.15–1.55)	<0.01
PT (s)	1.00 (0.99–1.01)	0.87		
INR	1.00 (0.99–1.02)	0.51		
Blood loss (mL)/1,000	1.62 (1.26–2.09)	<0.01		
pRBC (U)	1.10 (1.04–1.15)	<0.01		
FFP (mL)/1,000	2.79 (1.42–5.46)	<0.01		
PCC (U)	1.15 (1.07–1.23)	<0.01		
Height (cm)	1.03 (0.97–1.09)	0.41		
Weight (kg)	1.02 (0.99–1.06)	0.25		
MiS degree				
MiS G1 (yes/no[a])	0.89 (0.24–3.34)	0.86	1.25 (0.31–5.01)	0.75
MiS G2 (yes/no[a])	1.58 (0.78–3.20)	0.20	1.48 (0.67–3.28)	0.34
MiS G3 (yes/no[a])	NA	NA	NA	NA
MaS degree				
MaS G1 (yes/no[a])	1.83 (0.54–6.26)	0.33	1.94 (0.56–6.76)	0.30
MaS G2 (yes/no[a])	2.56 (1.34–4.88)	<0.01	2.55 (1.31–4.94)	0.01
MaS G3 (yes/no[a])	1.32 (0.76–2.29)	0.33	1.31 (0.74–2.32)	0.36

Logistic regression was tested for univariate and multivariate analysis; factors significantly associated with 90-day patient post-transplant survival were enrolled into multi-covariate logistic regression analysis. [a], "no" represented the patients received allografts with absence of steatosis (non-steatosis group). "NA" in MiS G3 group was because no patient death was observed in 90 day in this group. G1/G2/G3 respectively represented the steatosis degree (0–10%], (10–20%), and [20%, upper limit]. AFP, alpha fetoprotein; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BMI, body mass index; F, female; INR, international normalized ratio; FFP, fresh frozen plasma; M, male; MaS, macrosteatosis; MELD, model for end-stage liver disease; MiS, microsteatosis; NA, not available; PCC, prothrombin complex concentrate; pRBC, packed red blood cells; PT, prothrombin time; TB, total bilirubin.

Table S5 Risk factors on 90-day allograft post-transplant survival

Variable	Univariate analysis		Multivariate analysis	
	OR (95% CI)	P value	OR (95% CI)	P value
Mixed steatosis (yes/no[a])	0.65 (0.14–2.92)	0.57		
MiS (yes/no[a])	0.84 (0.35–2.05)	0.71		
MaS (yes/no[a])	3.45 (1.60–7.45)	<0.01	2.91 (1.13–7.44)	0.03
Age (years)	1.01 (0.98–1.05)	0.43	1.04 (1.00–1.10)	0.06
Gender (F/M)	1.03 (0.40–2.68)	0.94		
Blood type (A/B/O/AB)	1.22 (0.85–1.76)	0.28		
BMI (kg/m^2)	1.03 (0.92–1.14)	0.61		
AFP (ng/mL)/100	1.00 (0.97–1.03)	0.80		
MELD score	1.02 (0.97–1.07)	0.50		
Operation time (hours)	1.36 (1.02–1.82)	0.04		
ALT (U/L)/1,000	1.63 (1.25–2.13)	<0.01	1.60 (1.18–2.18)	<0.01
AST (U/L)/1,000	1.13 (1.04–1.23)	<0.01		
TB (μmol/L)/100	1.37 (1.18–1.58)	<0.01	1.38 (1.17–1.63)	<0.01
PT (s)	1.00 (0.99–1.01)	0.86		
INR	1.01 (0.99–1.02)	0.57		
Blood loss (mL)/1,000	1.65 (1.27–2.12)	<0.01		
pRBC (U)	1.10 (1.04–1.15)	<0.01		
FFP (mL)/1,000	2.85 (1.47–5.53)	<0.01		
PCC (U)	1.16 (1.08–1.25)	<0.01	1.12 (1.04–1.22)	<0.01
Height (cm)	1.03 (0.97–1.09)	0.34		
Weight (kg)	1.02 (0.98–1.05)	0.32		
MiS degree				
MiS G1 (yes/no[a])	0.89 (0.24–3.34)	0.86	1.26 (0.31–5.11)	0.75
MiS G2 (yes/no[a])	1.83 (0.96–3.48)	0.07	1.49 (0.70–3.14)	0.30
MiS G3 (yes/no[a])	NA	NA	NA	NA
MaS degree				
MaS G1 (yes/no[a])	2.41 (0.76–7.63)	0.13	1.58 (0.40–6.27)	0.51
MaS G2 (yes/no[a])	2.80 (1.51–5.22)	<0.01	2.19 (1.07–4.46)	0.03
MaS G3 (yes/no[a])	1.51 (0.93–2.45)	0.10	1.45 (0.86–2.44)	0.17

Logistic regression was tested for univariate and multivariate analysis; factors significantly associated with 90-day allograft post-transplant survival were enrolled into multi-covariate logistic regression analysis. [a], "no" represented the patients received allografts with absence of steatosis (non-steatosis group). "NA" in MiS G3 group was because no graft failure was observed in 90 day in this group. G1/G2/G3 respectively represented the steatosis degree (0–10%], (10–20%), and [20%, upper limit]. AFP, alpha fetoprotein; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BMI, body mass index; F, female; INR, international normalized ratio; FFP, fresh frozen plasma; M, male; MaS, macrosteatosis; MELD, model for end-stage liver disease; MiS, microsteatosis; NA, not available; PCC, prothrombin complex concentrate; pRBC, packed red blood cells; PT, prothrombin time; TB, total bilirubin.

Table S6 Risk factors on 180-day patient post-transplant survival

Variable	Univariate analysis		Multivariate analysis	
	OR (95%CI)	P value	OR (95%CI)	P value
Mixed steatosis (yes/no[a])	0.84 (0.35–2.05)	0.71		
MiS (yes/no[a])	0.65 (0.14–2.92)	0.57		
MaS (yes/no[a])	2.52 (1.15–5.53)	0.02	2.75 (1.15–6.57)	0.02
Age (years)	1.04 (0.99–1.07)	0.07	1.05 (1.01–1.10)	0.01
Gender (F/M)	1.03 (0.40–2.68)	0.94		
Blood type (A/B/O/AB)	1.31 (0.91–1.88)	0.15		
BMI (kg/m^2)	1.04 (0.94–1.16)	0.43		
AFP (ng/mL)/100	1.00 (0.96–1.03)	0.75		
MELD score	1.00 (0.95–1.05)	0.95		
Operation time (hours)	1.30 (0.97–1.74)	0.08		
ALT (U/L)/1,000	1.50 (1.17–1.93)	<0.01		
AST (U/L)/1,000	1.14 (1.05–1.24)	<0.01		
TB (μmol/L)/100	1.28 (1.11–1.48)	<0.01	1.30 (1.11–1.51)	<0.01
PT (s)	1.00 (0.99–1.01)	0.82		
INR	1.01 (0.99–1.02)	0.58		
Blood loss (mL)/1,000	1.51 (1.19–1.93)	<0.01		
pRBC (U)	1.08 (1.03–1.14)	<0.01		
FFP (mL)/1,000	2.11 (1.12–3.99)	0.02		
PCC (U)	1.15 (1.07–1.23)	<0.01	1.11 (1.03–1.20)	0.01
Height (cm)	1.04 (0.99–1.11)	0.14		
Weight (kg)	1.03 (0.99–1.06)	0.14		
MiS degree				
MiS G1 (yes/no[a])	0.75 (0.20–2.76)	0.66	0.86 (0.21–3.42)	0.83
MiS G2 (yes/no[a])	1.39 (0.70–2.77)	0.35	0.95 (0.40–2.23)	0.90
MiS G3 (yes/no[a])	1.16 (0.55–2.42)	0.70	1.23 (0.58–2.64)	0.59
MaS degree	0.75 (0.20–2.76)	0.66	0.86 (0.21–3.42)	0.83
MaS G1 (yes/no[a])	1.54 (0.46–5.17)	0.48	1.84 (0.52–6.50)	0.34
MaS G2 (yes/no[a])	2.20 (1.18–4.10)	0.01	2.24 (1.16–4.34)	0.02
MaS G3 (yes/no[a])	1.42 (0.88–2.30)	0.15	1.64 (0.96–2.78)	0.07

Logistic regression was tested for univariate and multivariate analysis; factors significantly associated with 180-day patient post-transplant survival (plus recipient age) were enrolled into multi-covariate logistic regression analysis. [a], "no" represented the patients received allografts with absence of steatosis (non-steatosis group). "NA" in MiS G3 group was because no graft failure was observed in 90 day in this group. G1/G2/G3 respectively represented the steatosis degree (0–10%], (10–20%), and [20%, upper limit]. AFP, alpha fetoprotein; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BMI, body mass index; F, female; INR, international normalized ratio; FFP, fresh frozen plasma; M, male; MaS, macrosteatosis; MELD, model for end-stage liver disease; MiS, microsteatosis; NA, not available; PCC, prothrombin complex concentrate; pRBC, packed red blood cells; PT, prothrombin time; TB, total bilirubin.

Table S7 Risk factors on 180-day allograft post-transplant survival

Variable	Univariate analysis		Multivariate analysis	
	OR (95% CI)	P value	OR (95% CI)	P value
Mixed steatosis (yes/no[a])	0.60 (0.13–2.72)	0.51		
MiS (yes/no[a])	0.95 (0.41–2.21)	0.90		
MaS (yes/no[a])	2.68 (1.24–5.76)	0.01	2.84 (1.21–6.63)	0.02
Age (years)	1.03 (0.99–1.06)	0.16	1.05 (1.01–1.09)	0.03
Gender (F/M)	1.19 (0.49–2.94)	0.70		
Blood type (A/B/O/AB)	1.24 (0.87–1.77)	0.23		
BMI (kg/m^2)	1.03 (0.92–1.14)	0.65		
AFP (ng/mL)/100	0.99 (0.96–1.03)	0.71		
MELD score	1.00 (0.96–1.05)	0.97		
Operation time (hours)	1.25 (0.94–1.94)	0.13		
ALT (U/L)/1,000	1.51 (1.18–1.94)	<0.01		
AST (U/L)/1,000	1.14 (1.05–1.24)	<0.01		
TB (μmol/L)/100	1.31 (1.13–1.51)	<0.01	1.31 (1.12–1.53)	<0.01
PT (s)	1.00 (0.99–1.01)	0.82		
INR	1.01 (0.99–1.02)	0.61		
Blood loss (mL)/1,000	1.48 (1.17–1.89)	<0.01		
pRBC (U)	1.08 (1.03–1.13)	<0.01		
FFP (mL)/1,000	2.10 (1.12–3.93)	0.02		
PCC (U)	1.14 (1.07–1.22)	<0.01	1.10 (1.03–1.19)	0.01
Height (cm)	1.04 (0.98–1.10)	0.20		
Weight (kg)	1.02 (0.99–1.05)	0.25		
MiS degree				
MiS G1 (yes/no[a])	0.75 (0.20–2.76)	0.66	0.76 (0.20–2.94)	0.69
MiS G2 (yes/no[a])	1.67 (0.89–3.16)	0.11	1.42 (0.69–2.92)	0.34
MiS G3 (yes/no[a])	1.16 (0.55–2.42)	0.70	1.00 (0.42–2.34)	0.98
MaS degree				
MaS G1 (yes/no[a])	1.54 (0.46–5.17)	0.48	1.70 (0.48–6.02)	0.41
MaS G2 (yes/no[a])	2.57 (1.39–4.74)	0.66	2.53 (1.26–5.08)	<0.01
MaS G3 (yes/no[a])	1.42 (0.88–2.30)	0.48	1.38 (0.75–2.52)	0.30

Logistic regression was tested for univariate and multivariate analysis; factors most significantly associated with 180-day patient post-transplant survival (including recipient age, post-transplant peak TB value, PCC transfusion) were enrolled into multi-covariate logistic regression analysis. [a], "no" represented the patients received allografts with absence of steatosis (non-steatosis group). "NA" in MiS G3 group was because no graft failure was observed in 90 day in this group. G1/G2/G3 respectively represented the steatosis degree (0–10%], (10–20%), and [20%, upper limit]. AFP, alpha fetoprotein; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BMI, body mass index; F, female; INR, international normalized ratio; FFP, fresh frozen plasma; M,male; MaS, macrosteatosis; MELD, model for end-stage liver disease; MiS, microsteatosis; NA, not available; PCC, prothrombin complex concentrate; pRBC, packed red blood cells; PT, prothrombin time; TB, total bilirubin.

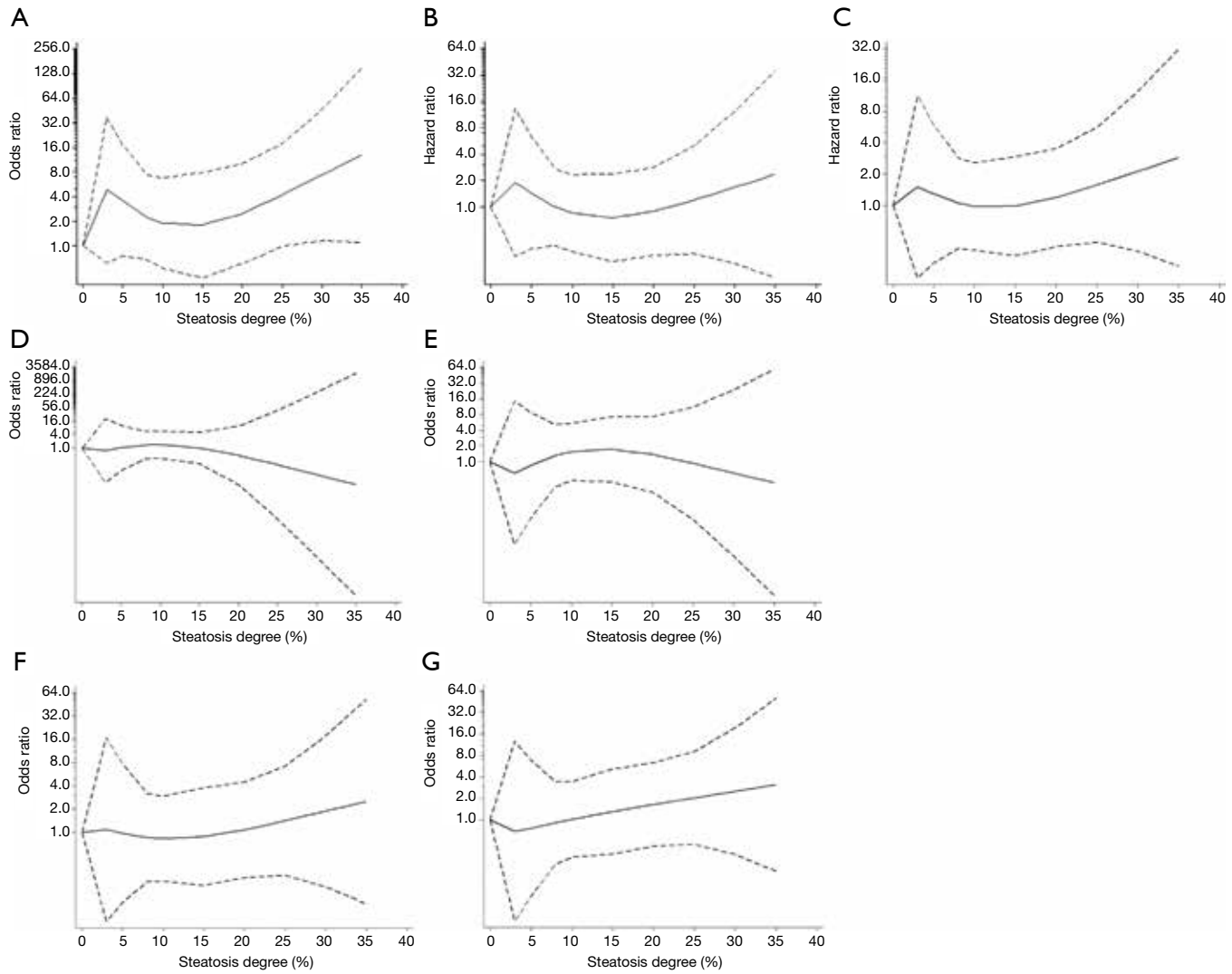

Figure S3 Dose-response risk of increasing MiS degree on post-transplant outcomes. (A) Dose-response risk of increasing MiS degree on EAD occurrence; (B) dose-response risk of increasing MiS degree on patients' mortality; (C) dose-response risk of increasing MiS degree on graft failure; (D) dose-response risk of increasing MiS degree on 90-day patients' mortality; (E) dose-response risk of increasing MiS degree on 90-day graft failure; (F) dose-response risk of increasing MiS degree on 180-day patients' mortality; (G) dose-response risk of increasing MiS degree on 180-day graft failure. The black solid and dashed curves represented instant ORs and their respective 95% CIs for post-transplant outcomes compared to subgroup using allografts without steatosis based on the restricted cubic splines model. CI, confidence interval; EAD, early-allograft dysfunction; MaS, macrovesicular steatosis; OR, odds ratio.

Table S8 Dose-response risk and of steatosis on post-transplant outcomes

Item	Linearity (P-value)	OR (95% CI)	P for significance
MaS			
EAD	Yes (0.12)	GLS	<0.01
5% *vs.* 0%		1.11 (0.23–5.22)	
10% *vs.* 0%		0.75 (0.16–3.39)	
15% *vs.* 0%		0.91 (0.18–4.60)	
20% *vs.* 0%		1.65 (0.43–6.36)	
25% *vs.* 0%		4.81 (1.28–18.2)	
30% *vs.* 0%		13.7 (1.75 –119)	
Overall patient mortality	No (0.03)	RCS	<0.01
5% *vs.* 0%		1.93 (0.59–6.28)	
10% *vs.* 0%		2.92 (1.23–6.94)	
15% *vs.* 0%		3.33 (1.30–8.48)	
20% *vs.* 0%		3.12 (1.28–7.58)	
30% *vs.* 0%		2.05 (0.39–11.5)	
90-d patient mortality	No (0.03)	RCS	<0.01
5% *vs.* 0%		1.13 (0.20–6.34)	
10% *vs.* 0%		3.88 (1.15–13.1)	
15% *vs.* 0%		6.30 (1.75–22.7)	
20% *vs.* 0%		6.20 (1.96–19.6)	
30% *vs.* 0%		3.49 (0.51–24.1)	
180-d patient mortality	Yes (0.65)	GLS	<0.01
5% *vs.* 0%		1.36 (0.28–6.56)	
10% *vs.* 0%		2.25 (0.69–7.31)	
15% *vs.* 0%		3.21 (0.90–11.5)	
20% *vs.* 0%		4.15 (1.32–13.1)	
30% *vs.* 0%		6.94 (1.08–48.4)	
Overall graft mortality	Yes (0.64)	GLS	<0.01
5% *vs.* 0%		1.98 (0.64–6.14)	
10% *vs.* 0%		2.82 (1.20–6.61)	
15% *vs.* 0%		3.59 (1.45–8.87)	
20% *vs.* 0%		4.25 (1.87–9.65)	
30% *vs.* 0%		5.50 (1.54–19.6)	
90-d organ mortality	Yes (0.33)	GLS	<0.01
5% *vs.* 0%		1.34 (0.25–7.07)	
10% *vs.* 0%		4.42 (1.33–14.7)	
15% *vs.* 0%		7.47 (2.06–27.1)	
20% *vs.* 0%		8.10 (2.52–26.0)	
30% *vs.* 0%		5.88 (1.18–29.3)	
180-d organ mortality	Yes (0.42)	GLS	<0.01
5% *vs.* 0%		1.23 (0.25–6.11)	
10% *vs.* 0%		2.59 (0.81–8.31)	
15% *vs.* 0%		4.00 (1.15–14.0)	
20% *vs.* 0%		5.03 (1.63–15.5)	
30% *vs.* 0%		6.34 (1.34–30.0)	
MiS			
EAD	Yes (0.51)	GLS	0.12
5% *vs.* 0%		3.60 (0.75–17.2)	
10% *vs.* 0%		1.89 (0.53–6.76)	
15% *vs.* 0%		1.79 (0.40–7.89)	
20% *vs.* 0%		2.49 (0.61–10.2)	
25% *vs.* 0%		4.21 (0.99–17.9)	
30% *vs.* 0%		7.36 (1.16–46.8)	
Overall patient mortality	Yes (0.92)	GLS	0.97
5% *vs.* 0%		1.45 (0.33–6.30)	
10% *vs.* 0%		0.85 (0.31–2.32)	
15% *vs.* 0%		0.75 (0.24–2.38)	
20% *vs.* 0%		0.89 (0.28–2.82)	
30% *vs.* 0%		1.68 (0.23–12.4)	
90-d patient mortality	Yes (0.92)	GLS	0.37
5% *vs.* 0%		0.97 (0.12–7.63)	
10% *vs.* 0%		0.83 (0.23–2.95)	
15% *vs.* 0%		0.88 (0.21–3.75)	
20% *vs.* 0%		1.07 (0.26–4.47)	
30% *vs.* 0%		1.87 (0.20–17.7)	
180-d patient mortality	Yes (0.53)	GLS	0.85
5% *vs.* 0%		0.97 (0.12–7.63)	
10% *vs.* 0%		0.83 (0.23–2.95)	
15% *vs.* 0%		0.88 (0.21–3.75)	
20% *vs.* 0%		1.07 (0.26 –4.47)	
30% *vs.* 0%		1.87 (0.20–17.7)	
Overall graft mortality	Yes (0.46)	GLS	0.69
5% *vs.* 0%		0.85 (0.08–8.85)	
10% *vs.* 0%		1.56 (0.44–5.48)	
15% *vs.* 0%		1.73 (0.41–7.26)	
20% *vs.* 0%		1.38 (0.26–7.29)	
30% *vs.* 0%		0.61 (0.02–23.9)	
90-d organ mortality	Yes (0.74)	GLS	0.37
5% *vs.* 0%		0.85 (0.08–8.85)	
10% *vs.* 0%		1.56 (0.44–5.48)	
15% *vs.* 0%		1.73 (0.41–7.26)	
20% *vs.* 0%		1.38 (0.26–7.29)	
30% *vs.* 0%		0.62 (0.02–23.9)	
180-d organ mortality	Yes (0.66)	GLS	0.97
5% *vs.* 0%		0.77 (0.09–6.87)	
10% *vs.* 0%		1.02 (0.30–3.44)	
15% *vs.* 0%		1.31 (0.33–5.17)	
20% *vs.* 0%		1.65 (0.43–6.31)	
30% *vs.* 0%		2.53 (0.33–19.6)	

GLS was used for group followed with linearity, and RCS was used for group with non-linearity. EAD, early allograft dysfunction; GLS, generalized least-squares; MaS, macrovesicular steatosis; RCS, restricted cubic splines.

Table S9 Case series classified by graft steatosis type and EAD occurrence in patients with extremely high ALT level

Steatosis type	EAD occurrence (Y/N)	Current status (n, alive/dead)	P value[a]
Non-steatosis	N	6/0	NA
Non-steatosis	Y	2/0	
MiS	N	3/0	NA
MiS	Y	2/0	
MaS	N	3/5	0.59
MaS	Y	1/3	
Mixed-steatosis	Y	2/0	NA

Extremely high ALT was defined as ALT >2,500 IU/L. Chi-square test was performed to evaluate the mortality distribution in MaS group categorized by EAD occurrence. a represented the significance for comparison performed in patients with/without EAD occurrence by chi-square test. ALT, alanine aminotransferase; EAD, early allograft dysfunction; MaS, macrosteatosis; MiS, microsteatosis; N, no; NA, not available; Y, yes.

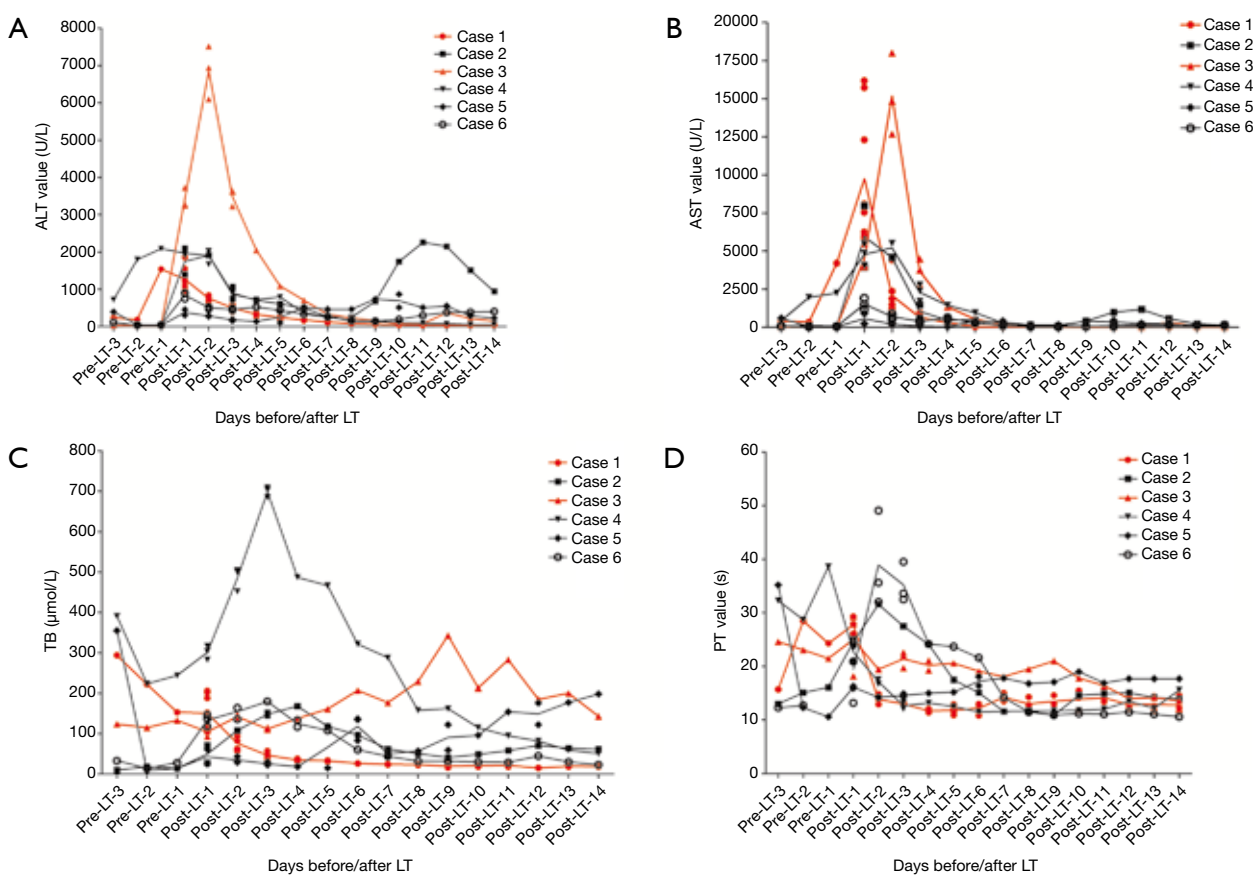

Figure S4 Peritransplant biochemical indicators for patients received re-transplantation. (A) Peritransplant ALT level for patients received re-liver transplantation; (B) peritransplant AST level for patients received re-liver transplantation; (C) peritransplant TB level for patients received re-liver transplantation; (D) peritransplant PT level for patients received re-liver transplantation. Number of cases were corresponded to the number in *Table 6*. Data was presented as discrete values and connected means for each individual case from three days before LT (pre-LT-3) to 2 weeks after LT (post-LT-14); data marked in red represented dead cases until the end of follow-up duration; data marked in black represented alive cases until the end of follow-up duration. Days before/after LT was subject to the time for first LT. ALT, alanine aminotransferase; AST, aspartate aminotransferase; LT, liver transplantation; PT, prothrombin time; TB, total bilirubin.

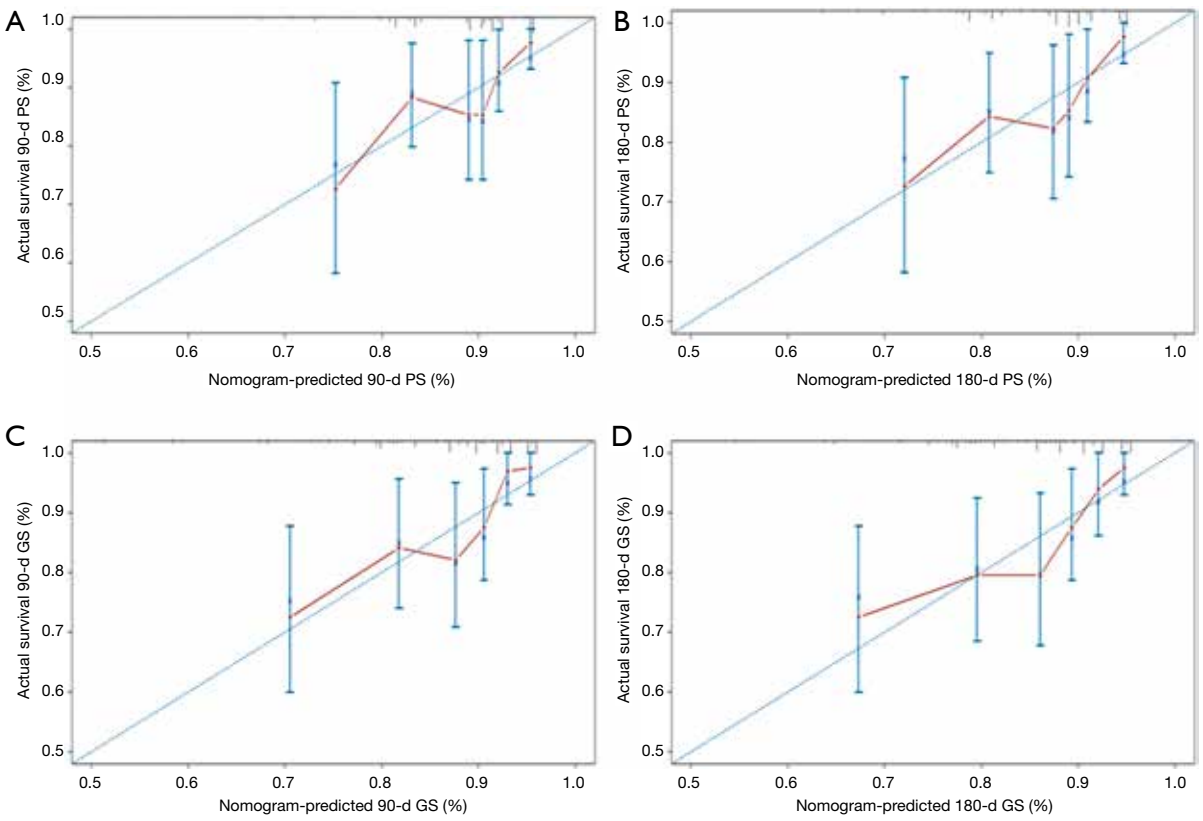

Figure S5 Calibration curves for association between predicted and actual survival in different time points. (A) Calibration curves for association between predicted and actual 90-day patient survival; (B) calibration curves for association between predicted and actual 180-day patient survival; (C) calibration curves for association between predicted and actual 90-day graft survival; (D) calibration curves for association between predicted and actual 180-day graft survival. Nomogram-predicted survival were plotted on the x-axis, actual survival were plotted on the y-axis. A plot followed the 45° line was indicative of a perfect calibration model between nomogram-predicted and actual outcomes. GS, graft survival; PS, patient survival.