Supplement Table 1.Baseline characteristics in ACLF vs no ACLF.

Characteristic	Total patients (N=332)	ACLF (N=36)	NO ACLF (N=296)	P value
Age (years)	56.6±12.8	54.0±16.1	56.9±12.3	0.19
Male No. (%)	231(69.6)	26(72.2)	205(69.3)	0.72
DM No. (%)	53(16.0)	4(11.1)	49(16.6)	0.40
MAP(mmHg)	89.8±12.4	79.8±16.4	91.0±11.3	<0.001
Previous decompensation NO. (%)	98(29.5)	10(27.8)	88(29.7)	0.81
Etiology				0.03
HBV No. (%)	194(58.4)	15(41.7)	179(60.5)	
Alcohol No. (%)	46(13.9)	9(25.0)	37(12.5)	
HBV plus alcohol No. (%)	32(9.6)	4(11.1)	28(9.5)	
Others No. (%)	42(12.7)	2(5.6)	40(13.5)	
Cryptogenic No. (%)	18(5.4)	6(16.7)	12(4.1)	
Admission events				
Ascites No. (%)	233(70.2)	22(61.1)	211(71.3)	0.21
GI bleeding No. (%)	54(16.3)	6(16.7)	48(16.2)	0.95
Bacterial infection No. (%)	60(18.1)	16(44.4)	44(14.9)	<0.001
HE No. (%)	32(9.6)	14(38.9)	18(6.1)	<0.001
Laboratory data				
ALT (IU/L)	42.5(88.8)	68.5(157)	40.0(82.5)	0.21
AST(IU/L)	61.0(108)	123(265)	56.0(93.8)	0.017
Albumin (g/dL)	29.1±5.5	25.1±6.1	29.6±5.2	<0.001
TB (μmol/l)	38.5(126)	171(210)	34.8(104)	<0.001
Hemoglobin(g/L)	110±24.4	104±27.1	110±24.0	0.17
International normalized ratio	1.5(0.6)	2.4(1.3)	1.5(0.5)	<0.001
Serum sodium (mmol/L)	138±4.9	135±4.8	138±4.8	<0.001

WBC count (10^9/L)	5.0(4.2)	8.5(8.2)	4.8(3.5)	<0.001
Creatinine (μmol/L)	64.2(26.0)	132(179)	62.6(23.6)	<0.001
Platelet count (10^9/L)	77.5(66.0)	66.0(81.3)	78.0(65.0)	0.29
MR-proADM (nmol/L)	11.8(12.9)	17.4(12.4)	11.0(12.3)	<0.001
CRP (mg/L)	8.8(14.0)	15.9(30.8)	8.1(13.5)	<0.001
Organ failure				
Liver No. (%)	60(18.1)	18(50.0)	42(14.2)	<0.001
Coagulation No. (%)	37(11.1)	21(58.3)	16(5.4)	<0.001
Brain No. (%)	6(1.8)	4(11.0)	2(0.7)	<0.001
Kidney No. (%)	13(3.9)	13(36.1)	0(0)	<0.001
Circulation No. (%)	9(2.7)	9(25.0)	0(0)	<0.001
Lung No. (%)	4(1.2)	4(11.1)	0(0)	<0.001
Mild-to-moderate HE No. (%)	26(7.8)	10(27.8)	16(5.4)	<0.001
Renal dysfunction No. (%)	12(3.6)	5(13.9)	7(2.4)	<0.001
Disease Severity				
CTP class				0.05
A No. (%)	0(0)	0(0)	0(0)	
B No. (%)	58(17.5)	2(5.6)	56(18.9)	
C No. (%)	274(82.5)	34(94.4)	240(81.1)	
CTP score	11.0(2.0)	12.0(2.0)	11.0(2.0)	<0.001
MELD score	11.3±9.0	23.6±10.5	9.8±7.5	<0.001
CLIF-C OF score	6.0(2.0)	10.0(2.0)	6.0(1.0)	<0.001
Transplant-free mortality (No.)				
28-day mortality	21(6.3)	14(38.9)	7(2.4)	<0.001
90-day mortality	45(13.6)	17(47.2)	28(9.5)	<0.001

NOTE. Data are expressed as mean ± standard deviation (SD), median (interquartile range) or number (percent). ACLF: acute-on-chronic liver failure; DM: diabetes mellitus; MAP: meanarterial pressure; AD: acute decompensation; HBV: hepatitis B virus; GI

bleeding: gastrointestinal bleeding; HE: hepatic encephalopathy; ALT: alanine aminotransferase; AST: aspartate Aminotransferase; TB: total Bilirubin; INR: International normalized ratio ;WBC: white blood cell;CRP: C-reactive protein ;CTP: Child-Turcotte-Pugh; MELD: Model for End-Stage Liver Disease; CLIF-C OF: The Chronic Liver Failure-consortium organ failure; Statistical analysis among groups was performed using Student's t-test, the Mann–Whitney U-test, or a Chi-squared test.

Supplement Table 2. Baseline characteristics of the study cohort based on their serum pro-ADM concentration.

Characteristic	Total patients (N=332)	Pro-ADM ≤ 11.8 nmol/L	Pro-ADM > 11.8 nmol/L	P value
Age (years)	56.6±12.8	56.0±12.0	57.3±13.5	0.36
Male No. (%)	231(69.6)	121(72.5)	110(66.7)	0.25
DM No. (%)	53(16.0)	25(15.0)	28(17.0)	0.62
MAP(mmHg)	89.8±12.4	90.4±12.2	89.2±12.7	0.39
Previous decompensation NO. (%)	98(29.5)	35(21.0)	63(38.2)	0.001
Etiology				0.84
HBV No. (%)	194(58.4)	98(58.7)	96(58.2)	
Alcohol No. (%)	46(13.9)	25(15.0)	21(12.7)	
HBV plus alcohol No. (%)	32(9.6)	16(9.6)	16(9.7)	
Others No. (%)	42(12.7)	19(11.4)	23(13.9)	
Cryptogenic No. (%)	18(5.4)	9(5.4)	9(5.5)	
Admission events				
Ascites No. (%)	233(70.2)	120(71.9)	113(68.5)	0.50
GI bleeding No. (%)	54(16.3)	34(20.4)	20(12.1)	0.04
Bacterial infection No. (%)	60(18.1)	27(16.2)	33(20.0)	0.37
HE No. (%)	32(9.6)	12(7.2)	20(12.1)	0.13
Laboratory data				
ALT (IU/L)	42.5(88.8)	33.0(42.0)	64.0(196)	<0.001
AST(IU/L)	61.0(108)	48.0(55.0)	90.0(176)	<0.001
Albumin (g/dL)	29.1±5.5	30.2±5.7	28.0±5.0	<0.001
TB (μmol/l)	38.5(126)	27.8(43.8)	89.8(201)	<0.001
Hemoglobin(g/L)	110±24.4	109±24.7	110±24.1	0.80

International normalized ratio	1.5(0.6)	1.4(0.4)	1.6(0.8)	<0.001
Serum sodium (mmol/L)	138±4.9	139±4.5	137±5.0	<0.001
WBC count (10^9/L)	5.0(4.2)	4.7(3.4)	5.4(4.7)	0.04
Creatinine (μmol/L)	64.2(26.0)	63.3(25.0)	65.2(26.6)	0.17
Platelet count (10^9/L)	77.5(66.0)	78.0(64.0)	77.0(68.0)	0.67
Pro-ADM (nmol/L)	11.8(12.9)	6.1(6.3)	18.9(9.1)	<0.001
CRP (mg/L)	8.8(14.0)	6.5(13.7)	11.0(13.8)	0.003
Disease Severity				
CTP score	11.0(2.0)	10.0(1.0)	11.0(2.0)	<0.001
MELD score	11.3±9.0	8.5±8.0	14.2±9.1	<0.001
CLIF-C OF score	6.0(2.0)	6.0(1.0)	7.0(2.0)	<0.001
CTP class				0.011
B No. (%)	58(17.5)	38(22.8)	20(12.1)	
C No. (%)	274(82.5)	129(77.2)	145(87.9)	
All ACLF grades				<0.001
Grade 1 No. (%)	12(3.6)	5(3.0)	7(4.2)	
Grade 2 No. (%)	17(5.1)	1(0.6)	16(9.7)	
Grade 3 No. (%)	7(2.1)	1(0.6)	6(3.6)	
Transplant-free mortality (No.)				
28-day mortality	21(6.3)	1(0.6)	20(12.1)	<0.001
90-day mortality	45(13.6)	10(6.0)	35(21.2)	<0.001

NOTE. Data are expressed as mean ± standard deviation (SD), median (interquartile range) or number (percent). ACLF: acute-on-chronic liver failure; DM: diabetes mellitus; MAP: mean arterial pressure; AD: acute decompensation; HBV: hepatitis B virus; GI bleeding: gastrointestinal bleeding; HE: hepatic encephalopathy; ALT: alanine aminotransferase; AST: aspartate Aminotransferase; TB: total Bilirubin; INR: International normalized ratio ; WBC: white blood cell; CRP: C-reactive protein ; CTP: Child-Turcotte-Pugh; MELD: Model for End-Stage Liver Disease; CLIF-C OF: The Chronic Liver Failure-consortium organ failure;Statistical analysis among groups was performed using Student's t-test, the Mann–Whitney U-test, or a Chi-squared test.

Supplement Table 3. Independent predictive factors of bacterial infection in AD patients.

Characteristic	Binary logistic regression analysis		Multivariate logistic regression analysis	
	95 %CI	P value	95 %CI	P value
Age (years)	1.014(0.992-1.036)	0.227		
Male No. (%)	0.885(0.477-1.641)	0.698		
DM No. (%)	1.604(0.797-3.230)	0.186		
MAP(mmHg)	0.968(0.947-0.990)	0.004		
Previous decompensation NO. (%)	1.947(1.091-3.475)	0.024		
HBV as etiology	0.706(0.395-1.263)	0.241		
Admission events				
Ascites No. (%)	1.672(0.859-3.251)	0.130		
GI bleeding No. (%)	0.532(0.216-1.308)	0.169		
HE No. (%)	1.910(0.835-4.370)	0.125		
Laboratory data				
ALT (IU/L)	0.996(0.993-0.999)	0.019		
AST(IU/L)	0.998(0.996-1.000)	0.104		
Albumin (g/dL)	0.877(0.828-0.928)	<0.001	0.915(0.861-0.972)	0.004
TB (μmol/l)	1.001(0.998-1.003)	0.506		
Hemoglobin(g/L)	0.991(0.980-1.003)	0.140		
International normalized ratio	1.806(1.189-2.745)	0.006		
Serum sodium (mmol/L)	0.956(0.906-1.010)	0.109		
WBC count (10^9/L)	1.194(1.115-1.278)	<0.001	1.133(1.054-1.218)	0.001

Creatinine (μmol/L)	1.014(1.007-1.020)	<0.001		
Platelet count (10^9/L)	1.004(0.999-1.009)	0.081		
Pro-ADM (nmol/L)	1.341(1.000-1.798)	0.050		
CRP (mg/L)	1.022 (1.011-1.032)	<0.001	1.010(0.999-1.020)	0.053
Disease Severity				
CTP score	1.431(1.173-1.745)	<0.001		
MELD score	1.059(1.027-1.092)	<0.001		
CLIF-C OF score	1.349(1.131-1.608)	0.001		

NOTE. Data are expressed as mean ± standard deviation (SD), median (interquartile range) or number (percent). ACLF: acute-on-chronic liver failure; DM: diabetes mellitus; MAP: mean arterial pressure; AD: acute decompensation; HBV: hepatitis B virus; GI bleeding: gastrointestinal bleeding; HE: hepatic encephalopathy; ALT: alanine aminotransferase; AST: aspartate Aminotransferase; TB: total Bilirubin; INR: International normalized ratio ;WBC: white blood cell; CRP: C-reactive protein ;CTP: Child-Turcotte-Pugh; MELD: Model for End-Stage Liver Disease; CLIF-C OF: The Chronic Liver Failure-consortium organ failure. Binary logistic regression analysis was performed to identify factors associated with bacterial infections. Candidate variables (P-value < 0.10) were entered into multivariate analysis.

Supplement Table 4.Univariate and multivariate cox regression analysis for risk factor of development of ACLF.

Characteristic	Developing ACLF (N=34)	No ACLF (N=262)	**Univariate regression analysis**		**Multivariate regression analysis**	
			95CI%	**P value**	**95CI%**	**P value**
Age (years)	58.7±13.6	56.7±12.1	1.012(0.985-1.041)	0.377		
Male No. (%)	23(67.6)	182(69.5)	1.093(0.533-2.242)	0.808		
DM No. (%)	8(23.5)	41(15.6)	1.601(0.725-3.536)	0.245		
MAP(mmHg)	90.3±11.0	91.1±11.4	0.994(0.966-1.024)	0.708		
Previous decompensation NO. (%)	7(20.6)	81(30.9)	0.593(0.258-1.361)	0.217		
HBV as etiology	22(64.7)	185(70.6)	0.788(0.390-1.593)	0.507		

Admission events						
Ascites No. (%)	22(64.7)	189(72.1)	0.724(0.358-1.463)	0.368		
GI bleeding No. (%)	2(5.9)	46(17.6)	0.307(0.073-1.279)	0.105		
Bacterial infection No. (%)	6(17.6)	38(14.5)	1.223(0.506-2.953)	0.655		
HE No. (%)	4(11.8)	14(5.3)	2.141(0.754-6.078)	0.153		
Laboratory data						
ALT (IU/L)	203(231)	36.0(57.0)	1.001(1.000-1.001)	0.012		
AST(IU/L)	150(160)	53.0(70.5)	1.001(1.001-1.002)	<0.001		
Albumin (g/dL)	27.4±3.4	29.9±5.3	0.914(0.855-0.977)	0.008		
TB (μmol/l)	196(155)	31.3(70.5)	1.006(1.005-1.008)	<0.001		
Hemoglobin(g/L)	109±23.2	110±24.1	0.998(0.984-1.012)	0.749		
INR	1.9(0.9)	1.4(0.4)	5.094(3.054-8.496)	<0.001		
Serum sodium (mmol/L)	136±5.8	139±4.5	0.906(0.860-0.954)	<0.001		
WBC count (10^9/L)	5.9(5.5)	4.6(3.5)	1.155(1.090-1.223)	<0.001	1.082(1.018-1.149)	0.011
Creatinine (μ mol/L)	58.0(37.8)	63.2(22.4)	1.003 (0.988-1.018)	0.713		
Platelet count (10^9/L)	90.5(77.3)	77.5(64.3)	1.001(0.995-1.007)	0.738		
Pro-ADM(nmol/L)	19.9(9.4)	10.1(11.5)	2.025(1.514-2.710)	<0.001	1.634(1.153-2.314)	0.006
CRP (mg/L)	12.1(12.6)	6.9(13.5)	1.010 (1.000-1.019)	0.044		
Disease Severity						
CTP score	12.0(1.0)	10.5(2.0)	1.755(1.354-2.275)	<0.001		
MELD score	16.7±5.9	8.9±7.3	1.160(1.101-1.223)	<0.001	1.109(1.047-1.174)	<0.001

NOTE. Data are expressed as mean ± standard deviation (SD), median (interquartile range) or number (percent). ACLF: acute-on-chronic liver failure; DM: diabetes mellitus; MAP: mean arterial pressure; AD: acute decompensation; HBV: hepatitis B virus; GI bleeding: gastrointestinal bleeding; HE: hepatic encephalopathy; ALT: alanine aminotransferase; AST: aspartate Aminotransferase; TB: total Bilirubin; INR: International normalized ratio ;WBC: white blood cell; CRP: C-reactive protein ;CTP: Child-Turcotte-Pugh; MELD: Model for End-Stage Liver Disease; Cox regression analysis was performed to identify factors associated with the development of ACLF. Candidate variables (P-value < 0.10) were entered into multivariate analysis.

Supplementary table 5. Main Causes of Death at 28 and 90 Days After Study Enrollment

Causes of death	**Deaths at 28 day (N=19)**	**Deaths at 90 day (N=37)**
Multiple organ failure without septic or hypovolemic shock	7**(36.8%)**	12**(32.4%)**
Septic shock	5**(26.3%)**	8**(21.6%)**
Hypovolemic shock	3**(15.8%)**	4**(10.8%)**
Cirrhosis[a]	0	2**(5.4%)**
Hepatocellular carcinoma	0	1**(2.7%)**
Other causes [b]	3**(15.8%)**	5**(13.5%)**
Cause unknown	1**(5.3%)**	5**(13.5%)**

Note: [a] Patients died of cirrhosis, but no specifific cause was indicated.

[b] Patient each had Cerebral hemorrhage, Myocardial infarction, Pulmonary embolism, cerebral thrombosis, Cardiac arrest.

Table 1. Baseline characteristics of the study cohort.

Characteristic	AD patients (N=332)	Compensated cirrhosis (N=30)	Healthy control (N=30)	P value
Age (years)	56.6±12.8	52.8±11.4	34.4±8.3	<0.001
Male No. (%)	231(69.6)	23(76.7)	13(43.3)	0.007
DM No. (%)	53(16.0)	3(10.0)	-	0.39
MAP(mmHg)	89.8±12.4	--	-	N
Previous decompensation NO. (%)	98(29.5)	-	-	N
Etiology				0.60
HBV No. (%)	194(58.4)	16(53.3)	-	
Alcohol No. (%)	46(13.9)	4(13.3)	-	
HBV plus alcohol No. (%)	32(9.6)	4(13.3)	-	
Others* No. (%)	42(12.7)	3(10.0)	-	
Cryptogenic No. (%)	18(5.4)	3(10.0)	-	
Admission events				
Ascites No. (%)	233(70.2)	-	-	N
GI bleeding No. (%)	54(16.3)	-	-	N
Bacterial infection No. (%)	60(18.1)	-	-	N
HE No. (%)	32(9.6)	-	-	N
Laboratory data				
ALT (IU/L)	42.5(88.8)	31.5(23.5)	16.0(13.5)	<0.001
AST(IU/L)	61.0(108)	31.0(26.3)	18.5(8.5)	<0.001
Albumin (g/dL)	29.1±5.5	38.2±5.3	46.8±2.8	<0.001
TB (μmol/l)	38.5(126)	13.6(8.7)	15.4(6.7)	<0.001
Hemoglobin(g/L)	110±24.4	137±17.3	143±16.2	<0.001
International normalized ratio	1.5(0.6)	1.2(0.2)	-	<0.001
Serum sodium (mmol/L)	138±4.9	141±3.0	140±2.0	0.001
WBC count (10^9/L)	5.0(4.2)	4.4(2.7)	5.9(1.5)	0.06
Creatinine (μmol/L)	64.2(26.0)	59.1(16.4)	52.2(27.5)	0.006
Platelet count (10^9/L)	77.5(66.0)	98.0(90.3)	221(56.8)	<0.001
CRP (mg/L)	8.8(14.0)	-	-	N
Pro-ADM (nmol/L)	11.8(12.9)	5.0(5.4)	3.2(1.5)	<0.001
Disease Severity				
CTP class				<0.001
A No. (%)	0(0)	30(100.0)	-	
B No. (%)	58(17.5)	0(0)	-	
C No. (%)	274(82.5)	0(0)	-	
CTP score	11.0(2.0)	5(1)	-	<0.001
MELD score	10.6(12.2)	3.0(7.3)	-	<0.001
CLIF-C OF score	6.0(2.0)	5(0)	-	<0.001
ACLF No. (%)	36(10.8)	-	-	N

NOTE. Data are expressed as mean ± standard deviation (SD), median (interquartile range) or

number (percent). AD: acute decompensation; HBV: hepatitis B virus; GI bleeding: gastrointestinal bleeding; HE: hepatic encephalopathy; ALT: alanine aminotransferase; AST: aspartate Aminotransferase; TB: total Bilirubin; INR: International normalized ratio ; WBC: white blood cell; CRP: C-reactive protein ;CTP: Child-Turcotte-Pugh; MELD: Model for End-Stage Liver Disease; CLIF-C OF: The Chronic Liver Failure-consortium organ failure;*Other etiologies of cirrhosis included HCV,autoimmune liver diseases, schistosomiasis, Wilson disease, non-alcoholic steatohepatitis (NASH) and hemachromatosis. Statistical analysis among groups was performed using Student’s t-test, the Mann–Whitney U-test, or a Chi-squared test.

Table 2. Baseline characteristics of survivors vs.non-survivors with univariate hazard ratios for prediction of 28 days mortality.

Characteristic	Non-survivors (N=21)	Survivors (N=311)	B	CI%	P value
Age (years)	58.6±15.4	56.5±12.6	0.013	1.013(0.979-1.047)	0.458
Male No. (%)	12(57.1)	219(70.4)	0.542	1.720(0.725-4.082)	0.219
DM No. (%)	2(9.5)	51(16.4)	-0.592	0.553(0.129-2.375)	0.426
MAP(mmHg)	80.2±18.3	90.4±11.7	-0.059	0.943(0.916-0.971)	<0.001
Previous decompensation NO. (%)	5(23.8)	93(29.9)	-0.308	0.735(0.269-2.007)	0.548
HBV as etiology	11(52.4)	215(69.1)	-0.697	0.498(0.212-1.173)	0.111
Admission events					
Ascites No. (%)	11(52.4)	222(71.4)	-0.791	0.453(0.193-1.067)	0.070
GI bleeding No. (%)	6(28.6)	48(15.4)	0.774	2.168(0.841-5.588)	0.109
Bacterial infection No. (%)	8(38.1)	52(16.7)	1.064	2.897(1.201-6.990)	0.018
HE No. (%)	8(38.1)	24(7.7)	1.929	6.883(2.849-16.627)	<0.001
Laboratory data					
ALT (IU/L)	117(229)	40.0(83.0)	0.001	1.001(1.000-1.001)	0.289
AST(IU/L)	178(306)	56.0(95.0)	0.001	1.001(1.000-1.002)	0.003
Albumin (g/dL)	24.3±5.4	29.5±5.3	-0.178	0.837(0.772-0.909)	<0.001
TB (μmol/l)	127(262)	36.3(116)	0.005	1.005(1.002-1.007)	<0.001
Hemoglobin(g/L)	103±24.8	110±24.3	-0.011	0.989(0.972-1.006)	0.208
INR	2.2(1.9)	1.5(0.5)	0.195	1.215(1.082-1.365)	0.001
Serum sodium (mmol/L)	135±4.8	138±4.9	-0.096	0.908(0.850-0.971)	0.005
WBC count (10^9/L)	9.8(11.8)	4.8(3.7)	0.179	1.196(1.132-1.265)	<0.001
Creatinine (μmol/L)	70.6(78.2)	63.6(25.0)	0.007	1.007(1.004-1.011)	<0.001
Platelet count (10^9/L)	90.0(80.5)	77.0(65.0)	0.001	1.001(0.994-1.008)	0.772
Pro-ADM (nmol/L)	20.7(12.5)	11.3(12.2)	0.074	2.102 (1.424-3.105)	<0.001
CRP (mg/L)	17.3(44.3)	8.6(13.5)	0.012	1.012(1.004-1.021)	0.003
Disease Severity					
CTP score	12.0(2.0)	11.0(2.0)	0.523	1.686(1.225-2.321)	0.001
MELD score	17.9(16.2)	10.4(11.5)	0.092	1.097(1.059-1.136)	<0.001
CLIF-C OF score	8.0(2.5)	6.0(2.0)	0.588	1.800(1.519-2.133)	<0.001

NOTE. Data are expressed as mean ± standard deviation (SD), median (interquartile range) or number (percent). ACLF: acute-on-chronic liver failure; DM: diabetes mellitus; MAP: mean arterial pressure; AD: acute decompensation; HBV: hepatitis B virus; GI bleeding: gastrointestinal bleeding; HE: hepatic encephalopathy; ALT: alanine aminotransferase; AST: aspartate Aminotransferase; TB: total Bilirubin; INR: International normalized ratio ;WBC: white blood cell;CRP: C-reactive protein ;CTP: Child-Turcotte-Pugh; MELD: Model for End-Stage Liver Disease; CLIF-C OF: The Chronic Liver Failure-consortium organ failure. Cox regression analysis was performed to identify factors associated with multiple outcomes .

Table 3. Independent risk factors of 28-day mortality by multivariate cox regression analysis in AD patients.

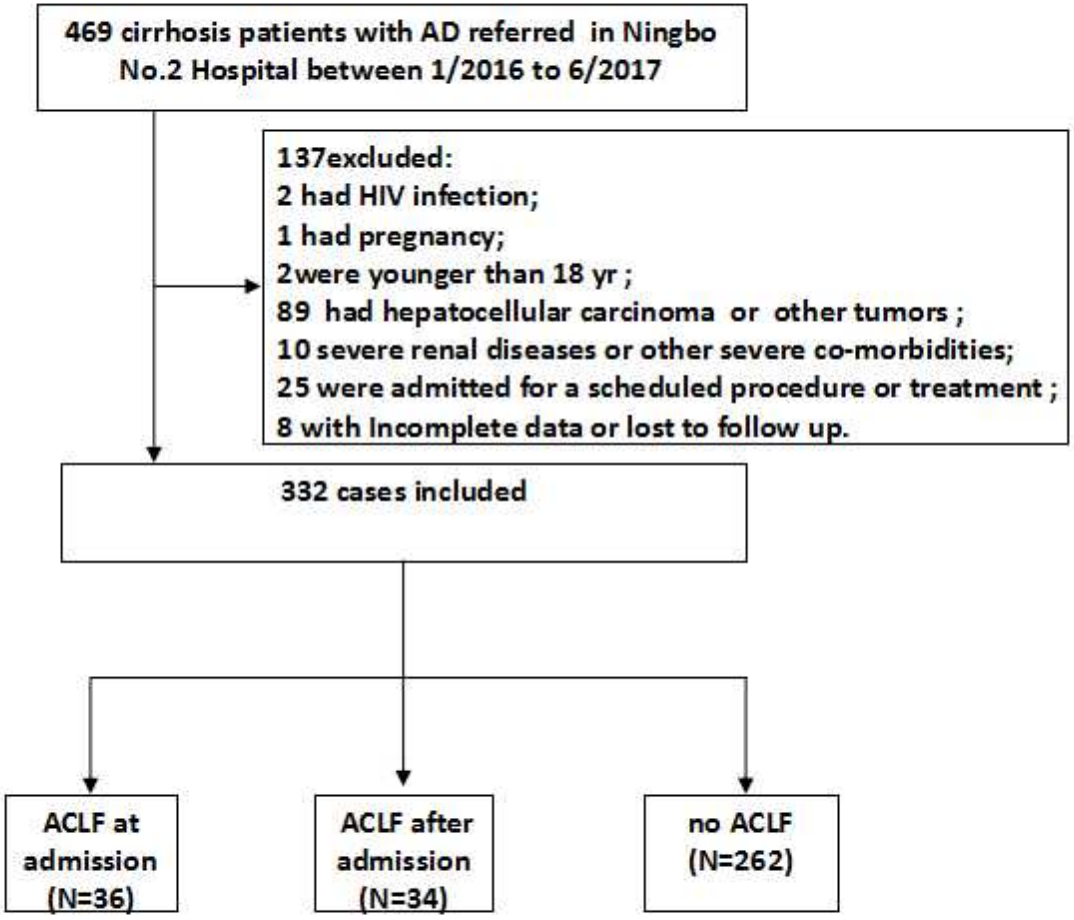
	Wald	B	P value	HR(95%Cl)
Model1				
WBC	15.550	0.125	<0.001	1.133(1.065-1.205)
Pro-ADM	4.946	0.052	0.03	1.053(1.006-1.102)
MELD	7.382	0.057	0.007	1.059(1.016-1.103)
Model2				
WBC	16.556	0.128	<0.001	1.136(1.069-1.209)
Pro-ADM	3.785	0.046	0.05	1.047(1.000-1.097)
CLIF-C OF	13.806	0.433	<0.001	1.541(1.227-1.937)

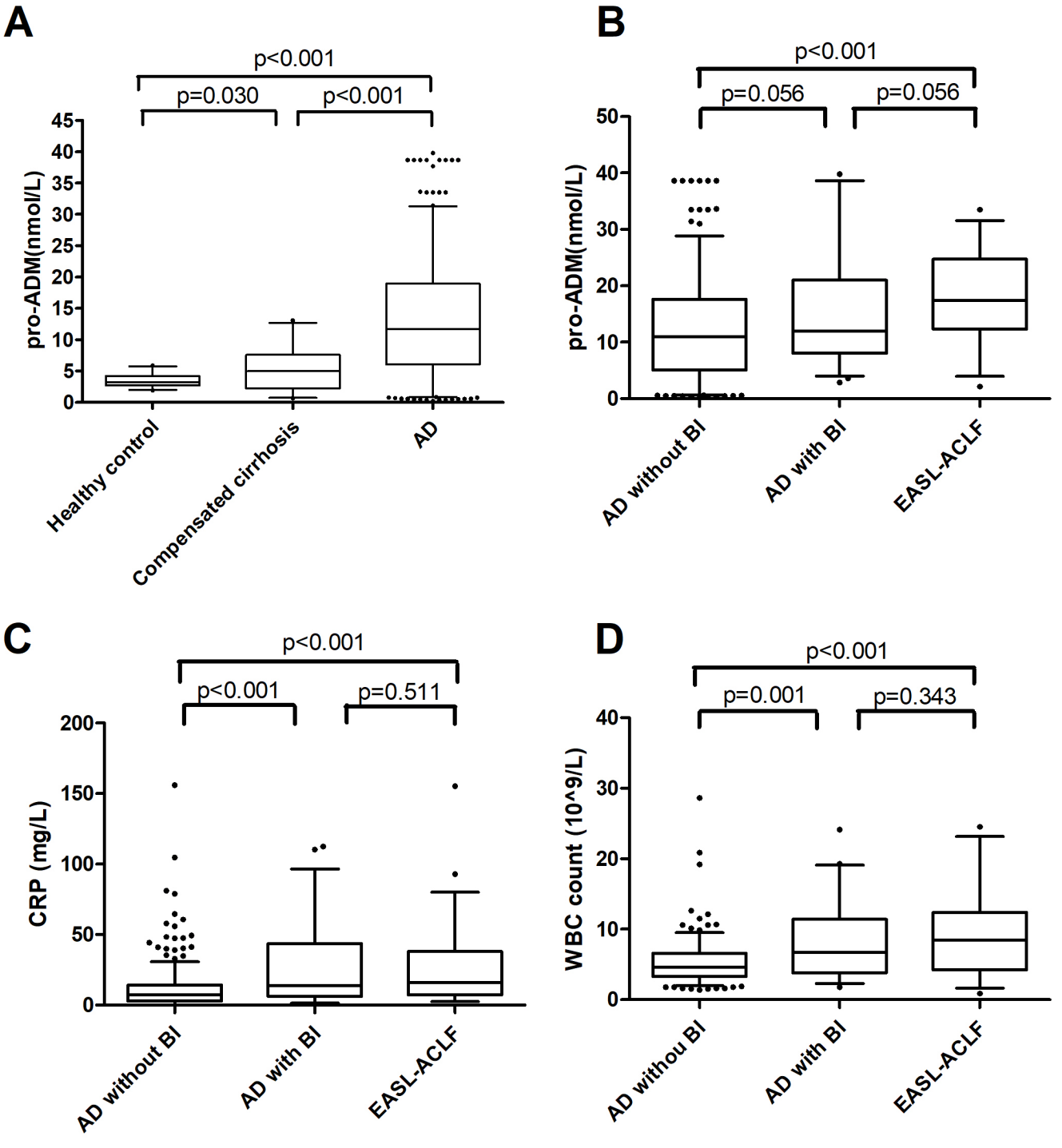
Statistical analysis was performed using a multivariable cox regression analysis (preliminary screening by a univariate cox regression analysis, see table 2.Risk factors by univariate cox regression analysis in model1 were pro-ADM, bacterial infection, hepatic encephalopathy, AST, albumin, Serum sodium, WBC , CRP and MELD score. Risk factors by univariate cox regression analysis in model2 were pro-ADM, bacterial infection , AST, albumin, Serum sodium, WBC , CRP and CLIF-C OF score (p <0.001). HE: hepatic encephalopathy; WBC: white blood cell; MELD: Model for End-Stage Liver Disease; CLIF-C OF: The Chronic Liver Failure-consortium organ failure.

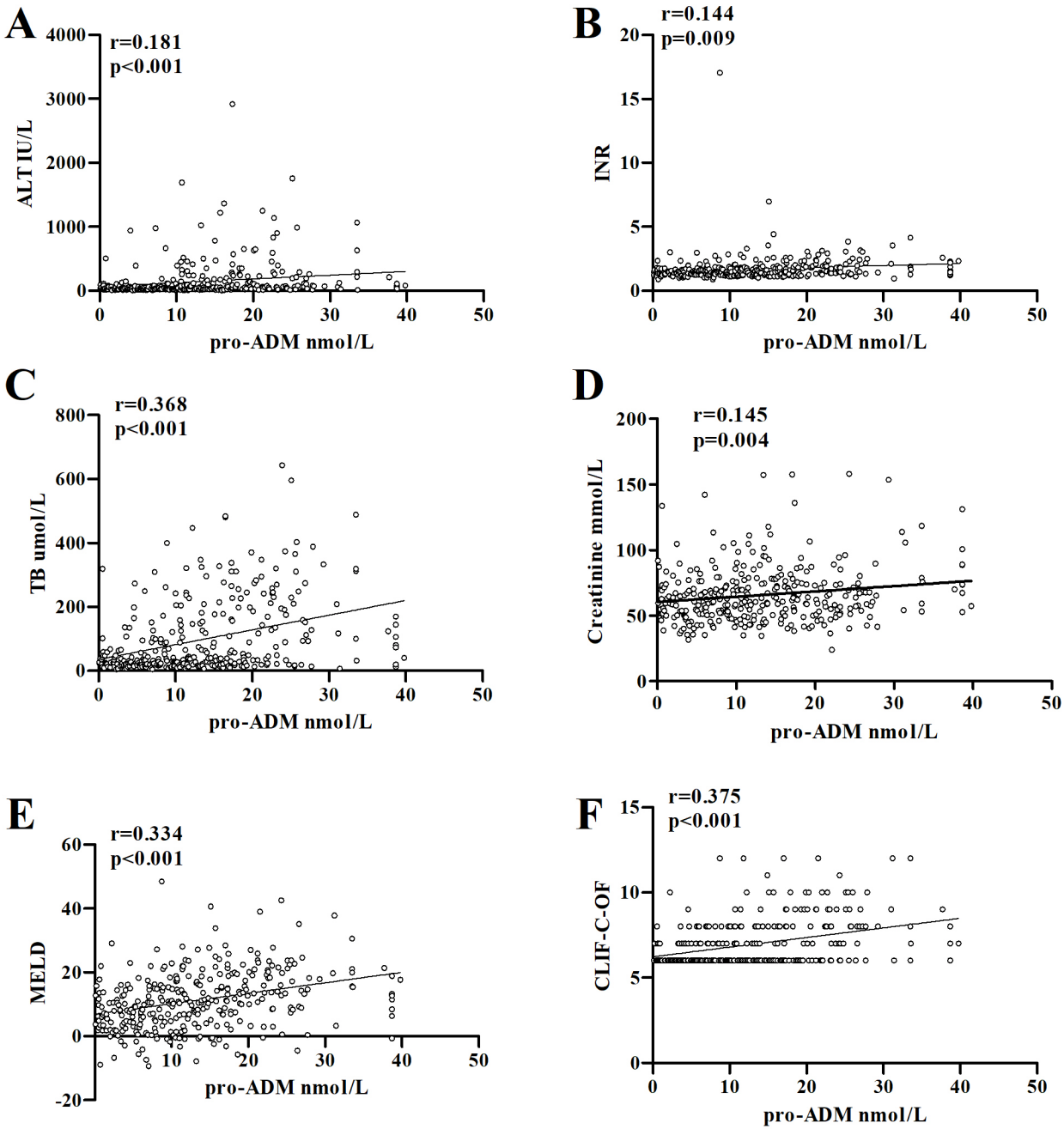
Table 4. C-index of MR proADM in association with MELD score and CLIF-C OF score at 28 days and 90 days of follow-up.

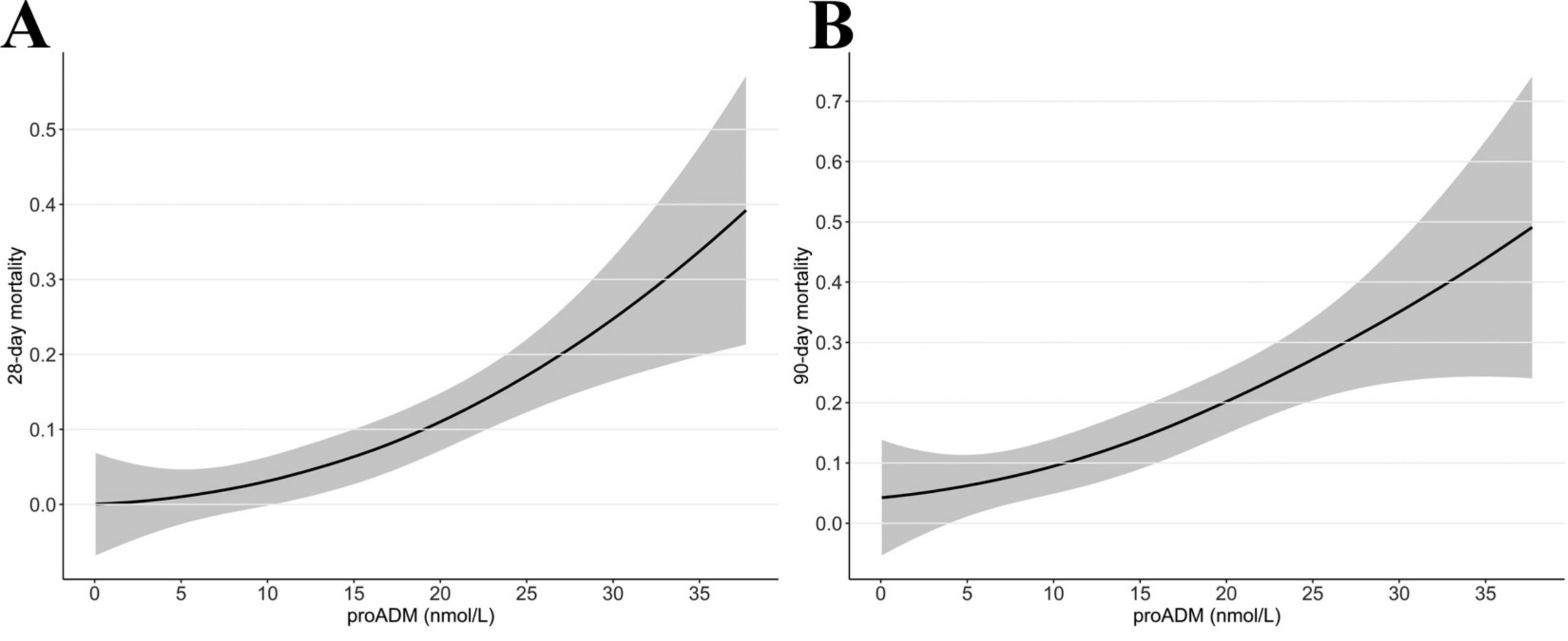
Models	**MELD+WBC+pro-ADM C index (95%Cl)**	**MELD+pro-ADM C index (95%Cl)**	**CLIF-C OF C index(95%Cl)**	**MELD score C index(95%Cl)**	**CTP score C index(95%Cl)**
28-day mortailty	0.846(0.773-0.919)	0.797(0.756-0.877)	0.787(0.689-0.886)	0.753(0.649-0.857)	0.698(0.578-0.816)
P value vs. MELD+WBC +pro-ADM	/	**0.026**	0.234	**0.019**	**0.004**
P value vs. MELD+pro-ADM	/	/	0.808	0.096	0.076
90-day mortailty	0.756(0.686-0.857)	0.731(0.658-0.805)	0.740(0.669-0.812)	0.708(0.632-0.784)	0.679(0.602-0.757)
P value vs. MELD+WBC+pro-ADM	/	0.127	0.582	**0.050**	**0.033**
P value vs. MELD+pro-ADM	/	/	0.722	0.172	0.151
Models	**CLIF-C OF+WBC+pro-ADM C index (95%Cl)**	**CLIF-C OF+pro-ADM C index (95%Cl)**	**CLIF-C OF C index(95%Cl)**	**MELD score C index(95%Cl)**	**CTP score C index(95%Cl)**
28-day mortailty	0.871(0.810-0.931)	0.837(0.770-0.903)	0.787(0.689-0.886)	0.753(0.649-0.857)	0.698(0.578-0.816)
P value vs. CLIF-C OF+WBC +pro-ADM	/	0.094	**0.050**	**0.003**	**0.001**
P value vs. CLIF-C OF + pro-ADM	/	/	**0.046**	**0.011**	**0.010**
90-day mortailty	0.778(0.712-0.844)	0.754(0.682-0.827)	0.740(0.669-0.812)	0.708(0.632-0.784)	0.679(0.602-0.757)
P value vs. CLIF-C OF+WBC+pro-ADM	/	0.154	0.129	**0.012**	**0.009**
P value vs. CLIF-C OF +pro-ADM	/	/	0.409	**0.043**	**0.047**

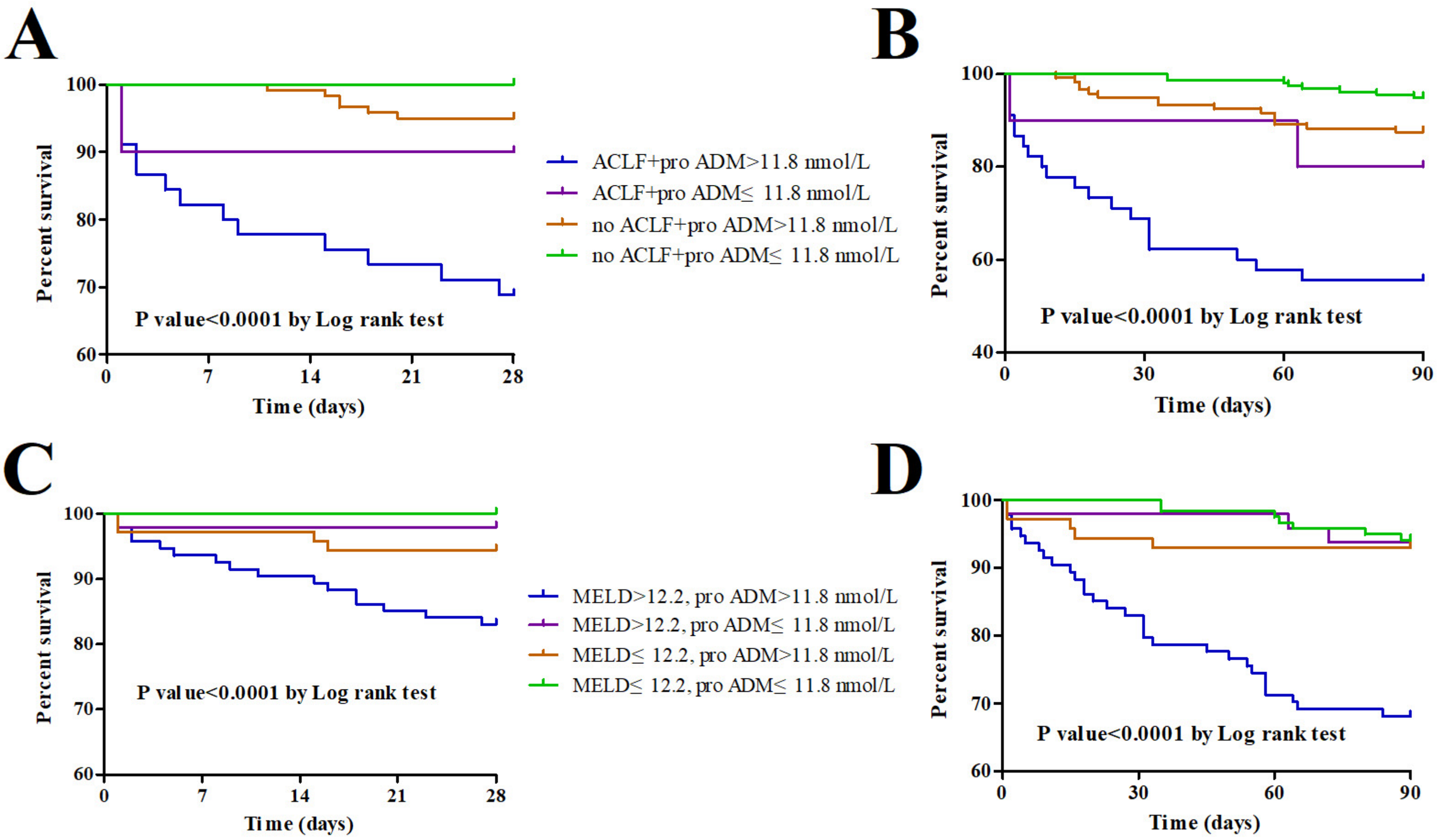
Statistical analysis was performed by C index. MELD: Model for End-Stage Liver Disease; CLIF-C OF: The Chronic Liver Failure-consortium organ failure; CTP: Child-Turcotte-Pugh.


469 cirrhosis patients with AD referred in Ningbo No.2 Hospital between 1/2016 to 6/2017
137excluded:
2 had HIV infection;
1 had pregnancy;
2were younger than 18 yr ;
89 had hepatocellular carcinoma or other tumors ;
10 severe renal diseases or other severe co-morbidities;
25 were admitted for a scheduled procedure or treatment ;
8 with Incomplete data or lost to follow up.
332 cases included
ACLF at admission (N=36)
ACLF after admission (N=34)
no ACLF (N=262)


A
p<0.001
p=0.030
p<0.001
pro-ADM(nmol/L)
45
40
35
30
25
20
15
10
5
0
Healthy control
Compensated cirrhosis
AD
B
p<0.001
p=0.056
p=0.056
pro-ADM(nmol/L)
50
40
30
20
10
0
AD without BI
AD with BI
EASL-ACLF
C
p<0.001
p<0.001
p=0.511
CRP (mg/L)
200
150
100
50
0
AD without BI
AD with BI
EASL-ACLF
D
p<0.001
p=0.001
p=0.343
WBC count (10^9/L)
40
30
20
10
0
AD withou BI
AD with BI
EASL-ACLF


A
r=0.181
p<0.001
ALT IU/L
pro-ADM nmol/L
B
r=0.144
p=0.009
INR
pro-ADM nmol/L
C
r=0.368
p<0.001
TB umol/L
pro-ADM nmol/L
D
r=0.145
p=0.004
Creatinine mmol/L
pro-ADM nmol/L
E
r=0.334
p<0.001
MELD
pro-ADM nmol/L
F
r=0.375
p<0.001
CLIF-C-OF
pro-ADM nmol/L


A
28-day mortality
0.0
0.1
0.2
0.3
0.4
0.5
0
5
10
15
20
25
30
35
proADM (nmol/L)
B
90-day mortality
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0
5
10
15
20
25
30
35
proADM (nmol/L)


A
B
C
D
Percent survival
Time (days)
P value<0.0001 by Log rank test
ACLF+pro ADM>11.8 nmol/L
ACLF+pro ADM≤ 11.8 nmol/L
no ACLF+pro ADM>11.8 nmol/L
no ACLF+pro ADM≤ 11.8 nmol/L
MELD>12.2, pro ADM>11.8 nmol/L
MELD>12.2, pro ADM≤ 11.8 nmol/L
MELD≤ 12.2, pro ADM>11.8 nmol/L
MELD≤ 12.2, pro ADM≤ 11.8 nmol/L