A

	OR (95% CI)	P
Age 30-49 years	1.45 (0.82,2.55)	0.198
Age over 50 years	0.98 (0.47,2.07)	0.961
Males	1.45 (0.82,2.55)	0.203
Obesity	3.82 (1.84,7.94)	<0.001
Hypertension	0.60 (0.14,2.53)	0.489
Diabetes	2.35 (0.80,6.90)	0.120
Liver disease	9.54 (5.01,18.16)	<0.001
Fever	1.15 (0.34,3.87)	0.820
Fatigue	0.83 (0.47,1.48)	0.535
Respiratory symptoms	1.24 (0.71,2.17)	0.455
GI symptoms	1.32 (0.58,3.01)	0.510
Mild cases	1.34 (0.74,2.42)	0.404
Chinese medicine	1.35 (0.75,2.43)	0.311
NSAIDs	0.65 (0.25,1.69)	0.381
Other medicine for cold	1.30 (0.61,2.76)	0.501

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B

	OR (95% CI)	P
Obesity	2.57 (1.15,5.70)	0.021
Liver disease	8.30 (4.21,16.36)	<0.001

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C

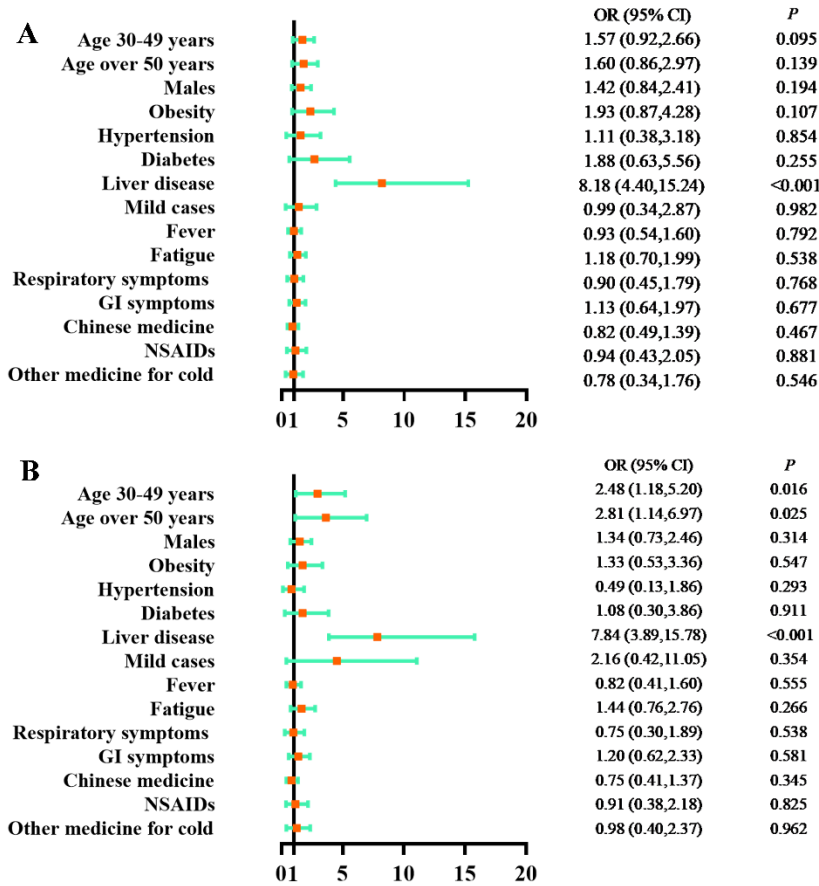|	OR (95% CI)	P
Age 30-49 years	1.63 (0.78,3.39)	0.194
Age over 50 years	1.66 (0.61,4.46)	0.319
Males	1.58 (0.82,3.06)	0.172
Obesity	3.31 (1.37,7.98)	0.008
Hypertension	0.13 (0.02,1.08)	0.059
Diabetes	1.66 (0.44,6.25)	0.452
Liver disease	9.05 (4.31,19.01)	<0.001
Mild cases	2.03 (0.28,14.89)	0.487
Fever	0.81 (0.39,1.70)	0.582
Fatigue	1.38 (0.68,2.81)	0.367
Respiratory symptoms	1.12 (0.35,3.61)	0.844
GI symptoms	1.32 (0.65,2.69)	0.445
Chinese medicine	1.36 (0.69,2.69)	0.378
NSAIDs	0.64 (0.22,1.88)	0.415
Other medicine for cold	2.13 (0.92,4.95)	0.078

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Supplementary Figure 1 Logistic regression models on factors associated with ALT. A: univariate logistic regression model; B: multivariate logistic regression model on key factors; C: multivariate logistic regression model on all factors; age: vs. age 14-29 years; GI: gastrointestinal; NSAIDs: nonsteroidal anti-inflammatory drugs; OR: odds ratio; CI: confidence interval.

A

	OR (95% CI)	P
Age 30-49 years	1.57 (0.92,2.66)	0.095
Age over 50 years	1.60 (0.86,2.97)	0.139
Males	1.42 (0.84,2.41)	0.194
Obesity	1.93 (0.87,4.28)	0.107
Hypertension	1.11 (0.38,3.18)	0.854
Diabetes	1.88 (0.63,5.56)	0.255
Liver disease	8.18 (4.40,15.24)	<0.001
Mild cases	0.99 (0.34,2.87)	0.982
Fever	0.93 (0.54,1.60)	0.792
Fatigue	1.18 (0.70,1.99)	0.538
Respiratory symptoms	0.90 (0.45,1.79)	0.768
GI symptoms	1.13 (0.64,1.97)	0.677
Chinese medicine	0.82 (0.49,1.39)	0.467
NSAIDs	0.94 (0.43,2.05)	0.881
Other medicine for cold	0.78 (0.34,1.76)	0.546

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B

	OR (95% CI)	P
Age 30-49 years	2.48 (1.18,5.20)	0.016
Age over 50 years	2.81 (1.14,6.97)	0.025
Males	1.34 (0.73,2.46)	0.314
Obesity	1.33 (0.53,3.36)	0.547
Hypertension	0.49 (0.13,1.86)	0.293
Diabetes	1.08 (0.30,3.86)	0.911
Liver disease	7.84 (3.89,15.78)	<0.001
Mild cases	2.16 (0.42,11.05)	0.354
Fever	0.82 (0.41,1.60)	0.555
Fatigue	1.44 (0.76,2.76)	0.266
Respiratory symptoms	0.75 (0.30,1.89)	0.538
GI symptoms	1.20 (0.62,2.33)	0.581
Chinese medicine	0.75 (0.41,1.37)	0.345
NSAIDs	0.91 (0.38,2.18)	0.825
Other medicine for cold	0.98 (0.40,2.37)	0.962

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Supplementary Figure 2 Logistic regression models on factors associated with AST. A: univariate logistic regression model; B: multivariate logistic regression model on all factors; age: vs. age 14-29 years; GI: gastrointestinal; NSAIDs: nonsteroidal anti-inflammatory drugs; OR: odds ratio; CI: confidence interval.

Supplementary Table 1 Liver tests of 661 patients with COVID-19

Characteristics	Liver tests			Total	P value
	Normal	Abnormal	Injury		
ALT, U/L, median (IQR)	21 (13-27)	50 (39-66)	199.5 (153.8-362.3)	22 (14.5-30)	< 0.001
Normal, n (%)	578 (100)	30 (39)	0 (0)	608 (92)	< 0.001
1-2×ULN, n (%)	0 (0)	44 (57.1)	0 (0)	44 (6.7)	
2-3×ULN, n (%)	0 (0)	3 (3.9)	1 (16.7)	4 (0.6)	
>3×ULN, n (%)	0 (0)	0 (0)	5 (83.3)	5 (0.8)	
AST, U/L, median (IQR)	19 (15-24)	44 (36.5-54.5)	176 (97-276.8)	20 (15-26.5)	< 0.001
Normal, n (%)	578 (100)	21 (27.2)	0 (0)	599 (90.6)	< 0.001
1-2×ULN, n (%)	0 (0)	52 (67.5)	0 (0)	52 (7.9)	
2-3×ULN, n (%)	0 (0)	4 (5.2)	3 (50)	7 (1.1)	
>3×ULN, n (%)	0 (0)	0 (0)	3 (50)	3 (0.5)	
TBIL, µmol/L, median (IQR)	7.6 (5.4-10)	8 (6.5-12)	12 (8.8-16.3)	7.8 (5.6-10)	< 0.001
Normal, n (%)	578 (100)	72 (93.5)	0 (0)	656 (99.2)	< 0.001
1-2×ULN, n (%)	0 (0)	4 (5.2)	0 (0)	4 (0.6)	
2-3×ULN, n (%)	0 (0)	1 (1.3)	0 (0)	1 (0.2)	
>3×ULN, n (%)	0 (0)	0 (0)	0 (0)	0 (0)	

IQR: interquartile range; ULN: upper limit of normal.

Supplementary Table 2 Comparison of viral shedding time between groups of different AST level and disease types

	Number (%)	Viral shedding time (day, mean ± SD)[a]
AST<2×ULN & asymptomatic cases	42 (6.4)	9.26±3.16
AST<2×ULN & mild cases	605 (92.1)	10.59±2.71[b]
AST≥2×ULN & mild cases	10 (1.5)	12.40±3.57[c]

[a]$P<0.01$; [b]AST<2×ULN & asymptomatic cases, $P<0.01$; [c]AST<2×ULN & asymptomatic cases, $P<0.01$, vs. AST<2×ULN & mild cases, $P<0.05$; ULN: Upper limit of normal; SD: Standard deviation.