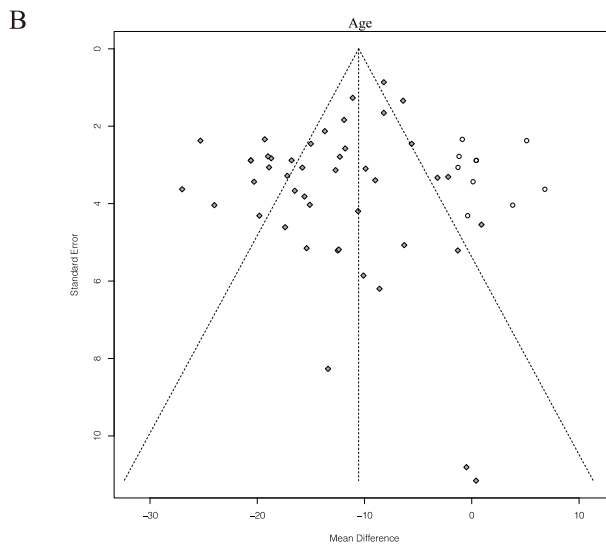
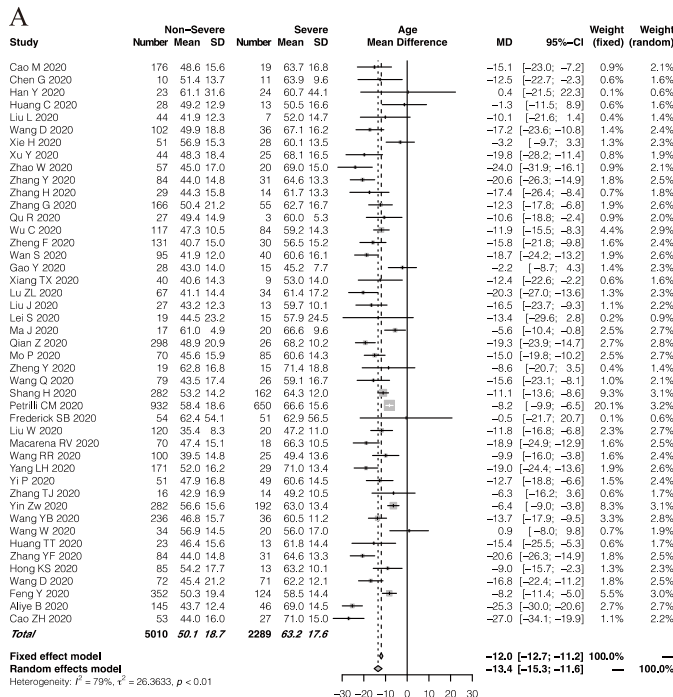
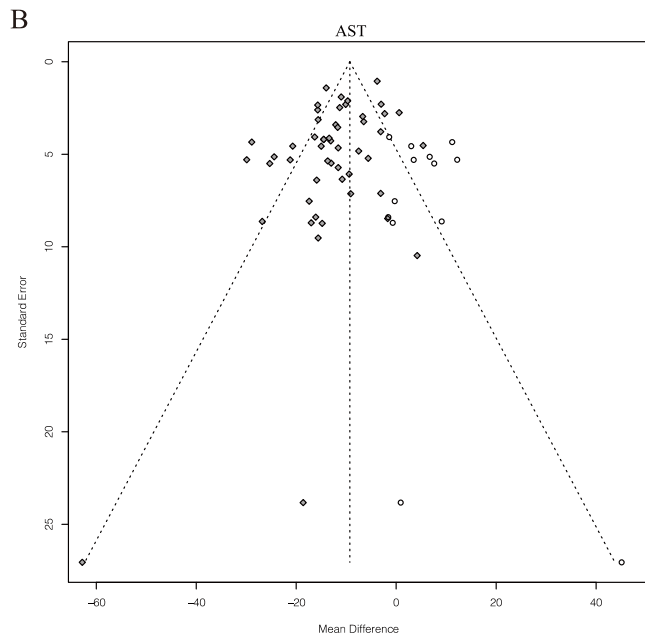
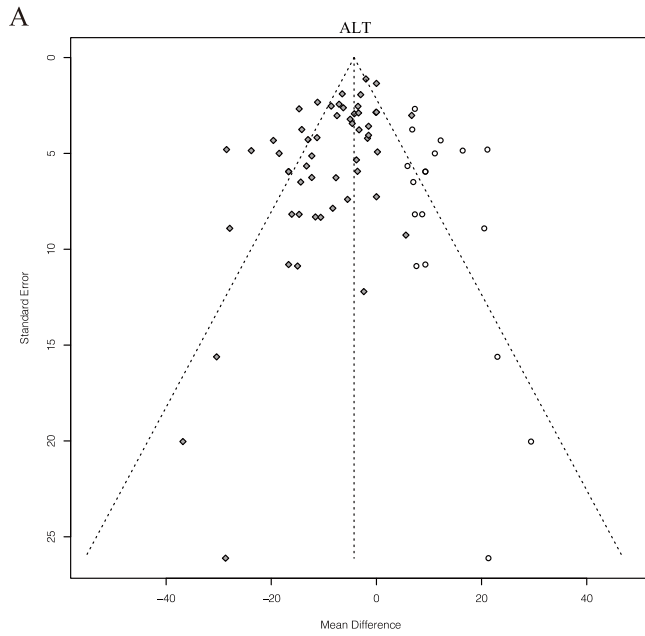


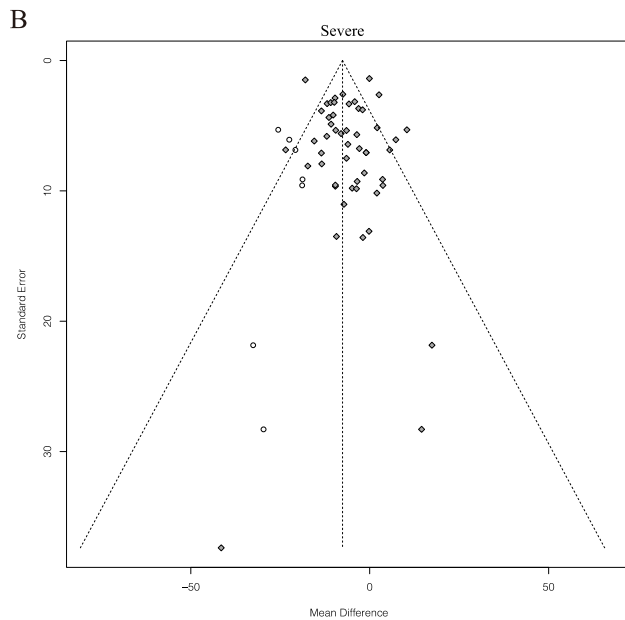
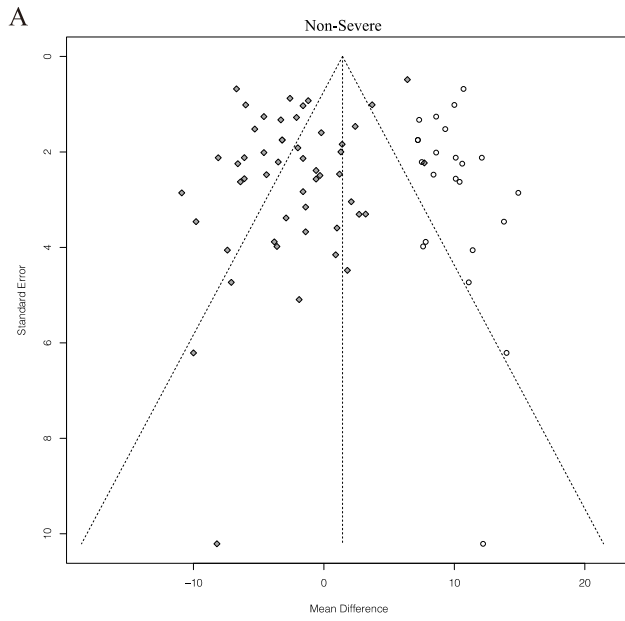
# Supplementary Figure Legends



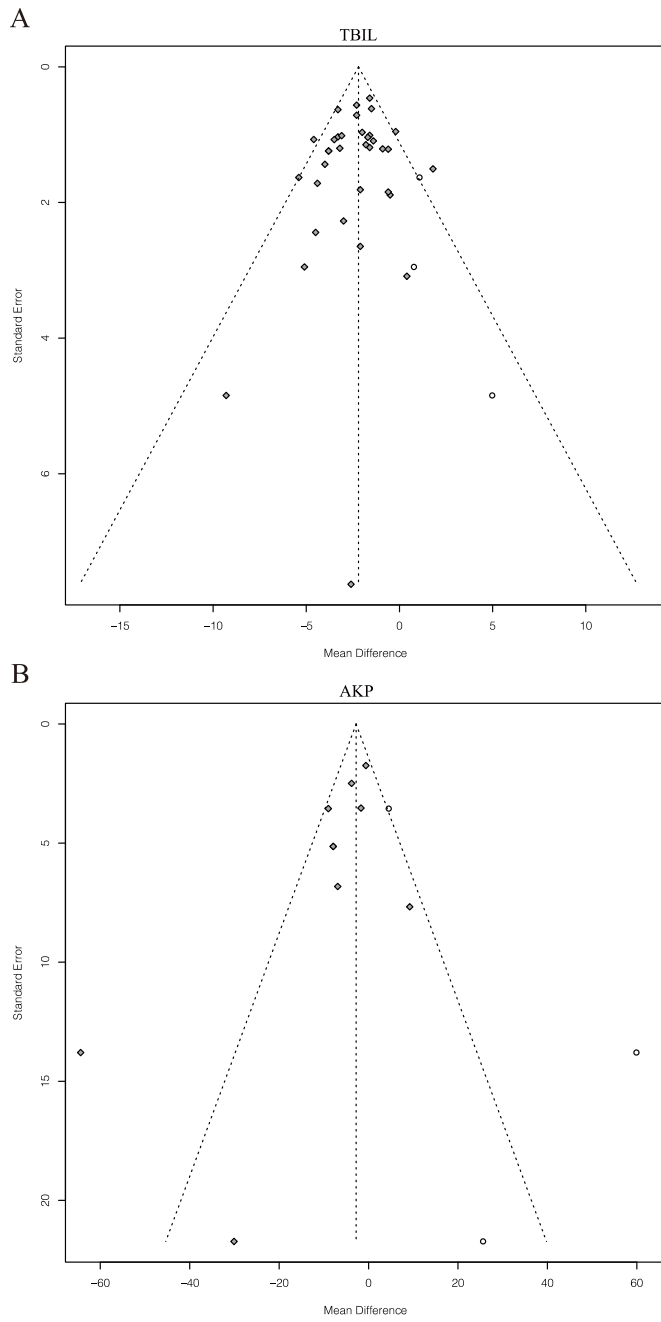
**Supplementary Figure 1 Association between age and disease severity. A:** Forest plot for the association of age and disease severity; **B:** Funnel plot for the association of age and disease severity.



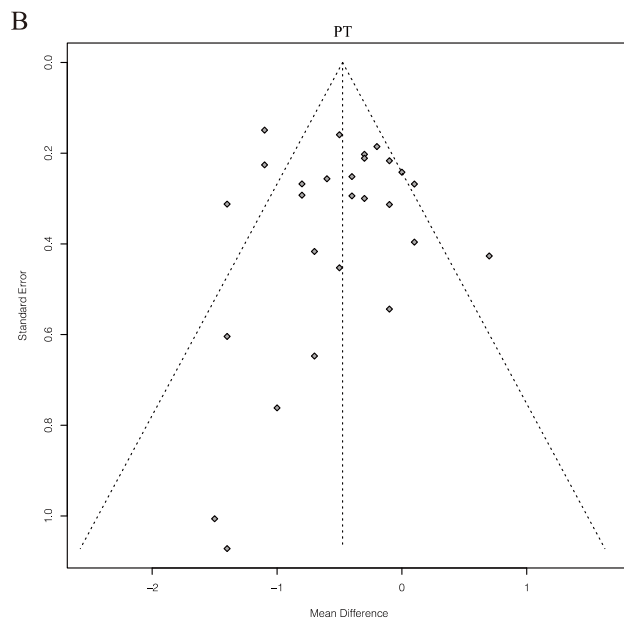
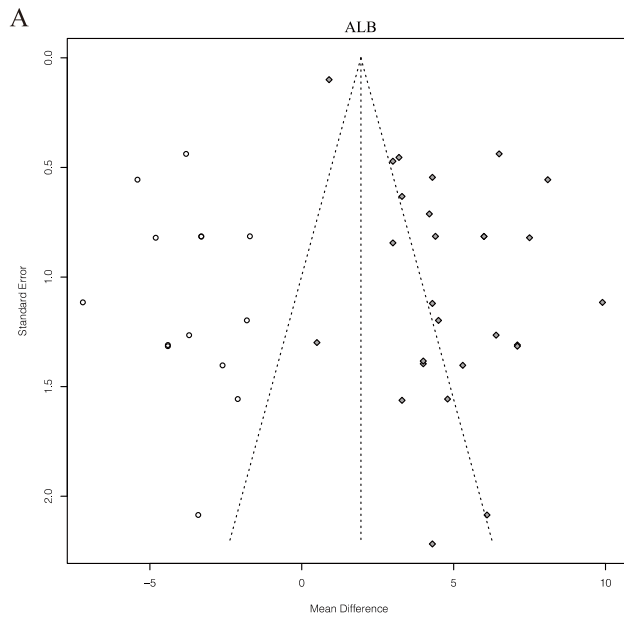
**Supplementary Figure 2 Funnel plot for the association of ALT/AST level and disease severity.** A: Funnel plot for the association of ALT level and disease severity; B: Funnel plot for the association of AST level and disease severity. ALT: alanine aminotransferase; AST: aspartate aminotransferase.



**Supplementary Figure 3 Funnel plot for the comparison between ALT and AST levels stratified by disease severity. A: Funnel plot for the comparison of ALT and AST levels in the non-severe cases; B: Funnel plot for the comparison between ALT and AST level in the severe cases. ALT, alanine aminotransferase; AST, aspartate aminotransferase.**



**Supplementary Figure 4** Funnel plot for the association of TBIL level and disease severity. TBIL: total bilirubin.



**Supplementary Figure 5** Funnel plot for the association of ALB level/PT and disease severity. A: Funnel plot for the association of ALB level and disease severity; B: Funnel plot for the association of PT and disease severity. Abbreviations: ALB, albumin; PT, prothrombin time.

**Supplementary Table 1 Characteristics of the enrolled studies for meta-analysis**

Ref.	Location	Number	Age [(mean±SD, or median (IQR)]	Male, number (%)	Severe, number (%)	TBIL [(mean±SD, or median (IQR)]	DBIL [(mean±SD, or median (IQR)]	ALT [(mean±SD, or median (IQR)]	AST [(mean±SD, or median (IQR)]
Cao <i>et al</i> <sup>[1]</sup>	Shanghai	198	50.1 (16.3)	101 (51.0)	19 (9.7)	8.1 (6.5–10.6)	NA	23.0 (15.0–33.0)	26.0 (20.0–34.0)
Cao <i>et al</i> <sup>[2]</sup>	Hubei	128	NA	60 (46.9)	21 (16.4)	NA	NA	31.3±20.4	31.3±20.4
Chen <i>et al</i> <sup>[3]</sup>	Hubei	21	56.3 (14.3)	17 (81.0)	11 (52.4)	9.8±5.6	NA	30.0±16.5	38.2±24.6
Han <i>et al</i> <sup>[4]</sup>	Hubei	47	64.9 (31.0–87.0)	26 (55.3)	24 (51.1)	15.8±10.5	NA	27.0 (17.3–49.0)	39.5±23.5
Huang <i>et al</i> <sup>[5]</sup>	Hubei	41	49.0 (41.0–58.0)	30 (73.0)	13 (31.7)	11.7 (9.5–13.9)	NA	32.0 (21.0–50.0)	34.0 (26.0–48.0)
Chen <i>et al</i> <sup>[6]</sup>	Hunan	291	46.0 (34.0–59.0)	145 (49.8)	50 (17.2)	10.8 (8.2–16.1)	NA	20.7 (14.9–28.9)	24.7 (19.9–31.4)
Fu <i>et al</i> <sup>[7]</sup>	Anhui	350	NA	187 (53.5)	139 (39.7)	11.5±5.6	3.8±2.0	26.6±20.5	33.3±21.8

Liu <i>et al</i> <sup>[8]</sup>	Chongqing	51	45.0 (34.0–51.0)	32 (62.7)	7 (13.7)	NA	NA	18.0 (14.0–30.0)	21.0 (16.0–30.0)
Wang <i>et al</i> <sup>[9]</sup>	Hubei	138	56.0 (42.0–68.0)	75 (54.3)	36 (26.1)	9.8 (8.4–14.1)	NA	24.0 (16.0–40.0)	31 (24.0–51.0)
Wang <i>et al</i> <sup>[10]</sup>	Hubei	110	NA	48 (43.6)	38 (34.5)	NA	NA	NA	NA
Xie <i>et al</i> <sup>[11]</sup>	Fujian	79	60.0 (48.0–66.0)	44 (55.7)	28 (35.4)	13.6 (8.8–17.6)	NA	34.0 (18.0–67.0)	30.0 (23.0–50.0)
Xu <i>et al</i> <sup>[12]</sup>	Shanghai	69	57.0 (43.0–69.0)	35 (50.7)	25 (36.2)	NA	NA	19.2 (15.1–33.1)	33.8 (26.1–47.8)
Zhao <i>et al</i> <sup>[13]</sup>	Beijing	77	52.0±20.0	34 (44.2)	20 (26.0)	NA	NA	28.0 (20.0–46.0)	29.0 (21.0–42.0)
Zhang <i>et al</i> <sup>[14]</sup>	Chongqing	43	NA	22 (51.2)	14 (32.6)	NA	NA	NA	NA
Zhang <i>et al</i> <sup>[15]</sup>	Hubei	221	55.0 (39.0–66.5)	108 (48.9)	55 (24.9)	10.0 (8.0–14.2)	NA	23.0 (16.0–39.0)	29.0 (22.0–49.0)

Qu <i>et al</i> [16]	Guangdong	30	50.5 (36–65)	16 (53.3)	3 (10.0)	NA	NA	NA	NA
Wu <i>et al</i> [17]	Hubei	201	51.0 (43.0–60.0)	128 (63.7)	84 (41.8)	11.5 (9.0–14.8)	NA	31.0 (19.8–47.0)	33.0 (26.0–45.0)
Zheng <i>et al</i> [18]	Hunan	161	45 (33.5–57.0)	80 (49.7)	30 (18.6)	10.9 (8.4–15.4)	NA	20.3 (15.0–24.5)	25.1 (19.9–32.8)
Wan <i>et al</i> [19]	Chongqing	135	47 (36–55)	72 (53.3)	40 (29.6)	8.6 (5.9–13.7)	NA	26.0 (12.9–33.2)	33.4 (27.8–43.7)
Gao <i>et al</i> [20]	Anhui	43	NA	26 (60.5)	15 (34.9)	NA	NA	NA	NA
Xiang <i>et al</i> [21]	Jiangxi	49	42.9 (18–78)	33 (67.3)	9 (18.4)	8.2±3.8	2.8±1.4	22.7±12.4	27.4±12.3
Li <i>et al</i> [22]	Hunan	80	47.8±19.5	40 (50.0)	17 (21.3)	NA	NA	30.0±15.6	36.2±15.4
Lu <i>et al</i> [23]	Hubei	101	NA	34 (33.7)	34 (33.7)	NA	NA	NA	NA
Liu <i>et al</i> [24]	Hubei	40	48.7±13.9	15 (37.5)	13 (32.5)	10.3±5.0	NA	22.5 (16.8–31.2)	34.1±17.7



Xiong <i>et al</i> [25]	Hubei	89	53.0±16.9	41 (46.1)	31 (34.8)	NA	NA	NA	NA
Cai <i>et al</i> [26]	Guangdong	417	47.0 (34.0–60.0)	198 (47.5)	111 (26.7)	NA	NA	NA	NA
Lei <i>et al</i> [27]	Hubei	34	55.0 (43.0–63.0)	14 (41.2)	15 (44.1)	9.9 (7.3–16.8)	NA	21.5 (13.0–46.3)	26.0 (20.3–55.7)
Ma <i>et al</i> [28]	Hubei	37	62.0 (59.0–70.0)	20 (54.1)	20 (54.1)	NA	NA	27.0 (17.0–47.0)	24.0 (20.0–41.0)
Qian <i>et al</i> [29]	Shanghai	324	51.0 (36.0–64.0)	167 (51.5)	26 (8.0)	9.5±4.6	NA	27.9±20.0	29.3±21.0
Liu <i>et al</i> [30]	Gansu	32	38.5 (26.3–45.8)	20 (62.5)	4 (12.5)	16.4 (11.3–21.1)	NA	27.0 (16.9–46.1)	24.7 (18.7–31.8)
Lu <i>et al</i> [31]	Shanghai	265	NA	NA	22 (8.3)	7.9 (6.5–10.5)	NA	23.0 (15.0–33.0)	24.0 (19.0–33.0)
Mo <i>et al</i> [32]	Hubei	155	54.0 (42.0–66.0)	86 (55.5)	85 (54.8)	NA	NA	23.0 (16.0–38.0)	32.0 (24.0–48.0)
Zheng <i>et al</i> [33]	Zhejiang	34	66.0 (58.0–76.0)	23 (67.6)	15 (44.1)	12.0 (7.6–18.6)	NA	20.0 (20.0–30.0)	NA

Wang <i>et al</i> [34]	Beijing	105	45.0 (33.5-59.5)	56 (53.3)	26 (24.8)	10.2 (7.4-12.9)	NA	23.5 (14.0-36.0)	24.2 (19.7-34.8)
Shang <i>et al</i> [35]	Hubei	514	54.0 (48.0-68.0)	271 (52.7)	162 (31.5)	10.8 (8.1-14.3)	3.6 (2.6-4.9)	34.0 (22.0-55.0)	33.0 (23.0-47.0)
Petrilli <i>et al</i> [36]	New York	1582	61.8±17.9	1002 (63.3)	650 (41.1)	NA	NA	36.3±22.0	47.3±26.8
Frederick <i>et al</i> [37]	Washington	105	69.0 (23.0-97.0)	53 (50.5)	51 (48.6)	8.6 (6.8-13.7)	NA	25.0 (17.0-39.0)	32.0 (22.0-48.0)
Gao <i>et al</i> [38]	Beijing	62	NA	34 (54.8)	19 (30.6)	NA	NA	29.3±29.5	30.9±22.8
Liu <i>et al</i> [39]	Hubei	140	36.0 (30.8-43.3)	44 (31.4)	20 (14.3)	NA	NA	21.5 (15.0-37.0)	24.0 (18.0-30.5)
Macarena <i>et al</i> [40]	Santiago	88	49.0 (39.5-65.0)	43 (48.9)	18 (20.5)	6.2 (4.3-8.2)	NA	26.1 (16.4-38.6)	27.3 (21.1-35.0)
Wang <i>et al</i> [41]	Anhui	125	38.8±13.8	54 (43.2)	25 (20.0)	9.6 (6.5-14.6)	NA	24.0 (15.0-38.0)	27.0 (21.1-34.0)

Yang <i>et al</i> [42]	Hubei	200	NA	98 (49.0)	29 (14.5)	12.5 (10.6-16.1)	NA	26.0 (19.0-75.0)	32.0 (26.0-39.8)
Yi <i>et al</i> [43]	Zhejiang	100	54.0 (42.0-64.0)	64 (64.0)	49 (49.0)	NA	NA	22.0 (15.0-40.5)	20.5 (16.0-34.0)
Zhang <i>et al</i> [44]	Sichuan	30	45.8±14.4	18 (60.0)	14 (46.7)	NA	NA	17.0 (14.0-23.6)	NA
Yin <i>et al</i> [45]	Hubei	474	60.0 (49.0-69.0)	247 (52.1)	192 (40.5)	NA	NA	23.2±14.7	21.0±10.3
Reza <i>et al</i> [46]	Fars	113	53.8±16.6	71 (62.8)	11 (9.7)	11.8±5.1	5.8±2.7	35.9±36.5	47.0±30.9
Wang <i>et al</i> [47]	Guangdong	272	NA	126 (46.3)	36 (13.2)	NA	NA	23.0±10.0	NA
Wang <i>et al</i> [48]	Hubei	54	NA	25 (46.3)	20 (37.0)	NA	NA	34.4±25.7	34.3±24.8
Zheng <i>et al</i> [49]	Hubei	1743	NA	783 (44.9)	59 (3.4)	11.1±3.9	2.2±1.0	28.6±19.4	22.1±8.9

Huang <i>et al</i> [50]	Shanxi	36	NA	16 (44.4)	13 (36.1)	10.9±4.8	3.8±2.2	NA	NA
Zhang <i>et al</i> [51]	Hubei	115	NA	49 (42.6)	31 (27.0)	11.3±5.2	NA	25.7±21.1	28.3±15.7
Hong <i>et al</i> [52]	Daegu	98	55.4±17.1	38 (38.8)	13 (13.3)	15.4±6.8	NA	33.9±42.1	45.9±47.2
Wang <i>et al</i> [53]	Hubei	143	58.0 (39.0-67.0)	73 (51.0)	71 (49.7)	14.4 (10.3-20.0)	NA	40.0 (22.0-62.4)	51.0 (34.1-72.6)
Feng <i>et al</i> [54]	Shanghai	476	53.0 (40.0-64.0)	271 (56.9)	124 (26.1)	10.1 (7.5-14.0)	4.0 (3.1-5.5)	NA	NA
Aliye <i>et al</i> [55]	Ankara	191	NA	107 (56.0)	46 (24.1)	NA	NA	30.7±24.1	35.4±39.0
Cao <i>et al</i> [56]	Beijing	80	53.0±20.0	38 (47.5)	27 (33.8)	8.6 (6.3-12.1)	NA	28.0 (20.0-46.8)	30.0 (22.0-47.0)
Cao <i>et al</i> [1]	Shanghai	198	NA	NA	40.9 (38.0-43.1)	NA	13.3 (12.9-13.8)	NA	NA

Cao <i>et al</i> <sup>[2]</sup>	Hubei	128	NA	NA	NA	NA	NA	NA
Chen <i>et al</i> <sup>[3]</sup>	Hubei	21	NA	NA	34.4±5.7	NA	13.8±1.0	NA
Han <i>et al</i> <sup>[4]</sup>	Hubei	47	NA	NA	NA	NA	12.3±1.1	NA
Huang <i>et al</i> <sup>[5]</sup>	Hubei	41	NA	NA	31.4 (28.9–36.0)	NA	11.1 (10.1–12.4)	NA
Chen <i>et al</i> <sup>[6]</sup>	Hunan	291	NA	NA	37.3 (34.7–40.3)	26.9 (23.8–29.6)	NA	NA
Fu <i>et al</i> <sup>[7]</sup>	Anhui	350	32.2±29.2	64.9±21.8	38.7±5.5	28.6±5.4	NA	NA
Liu <i>et al</i> <sup>[8]</sup>	Chongqing	51	NA	NA	40.0 (36.0–43.0)	NA	NA	NA
Wang <i>et al</i> <sup>[9]</sup>	Hubei	138	NA	NA	NA	NA	13.0±1.0	NA
Wang <i>et al</i> <sup>[10]</sup>	Hubei	110	NA	NA	NA	NA	NA	NA

Xie <i>et al</i> <sup>[11]</sup>	Fujian	79	31.5 (19.0–81.3)	79.0 (59.0–100.0)	NA	NA	NA	NA
Xu <i>et al</i> <sup>[12]</sup>	Shanghai	69	NA	NA	NA	NA	12.1 (11.0–13.2)	NA
Zhao <i>et al</i> <sup>[13]</sup>	Beijing	77	NA	NA	NA	NA	12.7 (12.2–13.1)	NA
Zhang <i>et al</i> <sup>[14]</sup>	Chongqing	43	NA	NA	NA	NA	NA	NA
Zhang <i>et al</i> <sup>[15]</sup>	Hubei	221	NA	NA	NA	NA	12.9(12.1–13.6)	NA
Qu <i>et al</i> <sup>[16]</sup>	Guangdong	30	NA	NA	NA	NA	NA	NA
Wu <i>et al</i> <sup>[17]</sup>	Hubei	201	NA	NA	32.8 (29.1–35.4)	30.7 (28.6–33.7)	11.1 (10.2–11.9)	NA
Zheng <i>et al</i> <sup>[18]</sup>	Hunan	161	NA	NA	NA	NA	NA	NA

Wan <i>et al</i> <sup>[19]</sup>	Chongqing	135	NA	NA	40.5 (37.0–43.4)	NA	10.9 (10.5–11.4)	NA
Gao <i>et al</i> <sup>[20]</sup>	Anhui	43	NA	NA	NA	NA	NA	NA
Xiang <i>et al</i> <sup>[21]</sup>	Jiangxi	49	NA	65.2±22.9	42.9±5.1	27.7±4.6	12.8±1.5	1.1±0.1
Li <i>et al</i> <sup>[22]</sup>	Hunan	80	NA	NA	37.9±3.5	NA	13.9±1.2	NA
Lu <i>et al</i> <sup>[23]</sup>	Hubei	101	NA	NA	NA	NA	NA	NA
Liu <i>et al</i> <sup>[24]</sup>	Hubei	40	NA	NA	NA	NA	13.2±0.6	1.0±0.1
Xiong <i>et al</i> <sup>[25]</sup>	Hubei	89	NA	NA	NA	NA	NA	NA
Cai <i>et al</i> <sup>[26]</sup>	Guangdong	417	NA	NA	NA	NA	NA	NA
Lei <i>et al</i> <sup>[27]</sup>	Hubei	34	NA	NA	NA	NA	11.5 (10.6–12.4)	NA
Ma <i>et al</i> <sup>[28]</sup>	Hubei	37	NA	NA	NA	NA	NA	NA

Qian <i>et al</i> [29]	Shanghai i	324	39.0±54.4	59.9±19.0	40.6±4.1	NA	NA	1.0±0.1
Liu <i>et al</i> [30]	Gansu	32	NA	NA	39.0 (36.2–44.2)	NA	NA	NA
Lu <i>et al</i> [31]	Shanghai i	265	NA	NA	40.8 (37.8–43.0)	NA	NA	NA
Mo <i>et al</i> [32]	Hubei	155	NA	NA	38.0 (34.0–41.0)	28.0 (26.0–31.0)	NA	NA
Zheng <i>et al</i> [33]	Zhejiang	34	NA	NA	NA	NA	NA	NA
Wang <i>et al</i> [34]	Beijing	105	NA	NA	41.6 (37.9–44.7)	NA	NA	NA
Shang <i>et al</i> [35]	Hubei	514	31.0 (20.0–56.0)	54.0 (43.0–71.0)	30.1 (26.8–33.9)	31.6 (28.6–35.2)	NA	NA
Petrilli <i>et al</i> [36]	New York	1582	NA	NA	NA	NA	NA	NA



Frederick <i>et al</i> [37]	Washing ton	105	NA	NA	NA	NA	NA	14.1 (13.4-15.8)	NA
Gao <i>et al</i> [38]	Beijing	62	NA	NA	NA	NA	NA	12.2±1.3	NA
Liu <i>et al</i> [39]	Hubei	140	NA	NA	NA	NA	NA	NA	NA
Macarena <i>et al</i> [40]	Santiago	88	NA	NA	40.5 (38.0-44.0)	NA	NA	NA	NA
Wang <i>et al</i> [41]	Anhui	125	NA	NA	NA	NA	NA	11.6 (10.9-12.5)	NA
Yang <i>et al</i> [42]	Hubei	200	NA	NA	37.9 (34.6-40.2)	NA	NA	11.0 (10.5-11.5)	NA
Yi <i>et al</i> [43]	Zhejiang	100	NA	NA	NA	NA	NA	NA	NA
Zhang <i>et al</i> [44]	Sichuan	30	NA	NA	NA	NA	NA	11.6 (10.7-12.6)	NA
Yin <i>et al</i> [45]	Hubei	474	NA	NA	38.9±5.2	26.5±4.8	NA	NA	NA

Reza <i>et al</i> [46]	Fars	113	NA	NA	39.0±4.6	NA	15.4±2.4	NA
Wang <i>et al</i> [47]	Guangdong	272	NA	NA	NA	NA	NA	NA
Wang <i>et al</i> [48]	Hubei	54	NA	NA	32.4±4.0	29.7±4.4	13.4±1.1	NA
Zheng <i>et al</i> [49]	Hubei	1743	NA	NA	38.6±4.4	NA	NA	NA
Huang <i>et al</i> [50]	Shanxi	36	NA	79.8±48.9	40.4±4.4	NA	11.6±1.8	NA
Zhang <i>et al</i> [51]	Hubei	115	36.1±45.0	73.7±24.4	38.8±4.4	29.2±4.0	NA	1.2±0.1
Hong <i>et al</i> [52]	Daegu	98	NA	NA	37.0±5.0	NA	NA	NA
Wang <i>et al</i> [53]	Hubei	143	NA	NA	36.0 (31.7-39.4)	NA	11.2 (10.8-12.4)	NA

Feng <i>et al</i> [54]	Shanghai	476	NA	NA	37.9 (32.8-41.8)	NA	NA	NA
Aliye <i>et al</i> [55]	Ankara	191	NA	NA	43.5±7.1	NA	12.7±1.2	1.1±0.1
Cao <i>et al</i> [56]	Beijing	80	NA	NA	35.4±5.5	NA	12.7 (11.0-13.1)	NA

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α-HBDH, α-hydroxybutyric dehydrogenase; ALT, alanine aminotransferase; APTT, activated partial thromboplastin time; ARDS, acute respiratory distress syndrome; AST, aspartate aminotransferase; CK-MB, creatine kinase muscle-brain isoform; ESR, erythrocyte sedimentation rate; HR, hazard ratio; hs-CRP, high-sensitivity C-reactive protein; IL-6, interleukin-6; LDH, lactate dehydrogenase; LDL, low-density lipoprotein; NA, not available; PT, prothrombin time.

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