

Table S1 Baseline laboratory data

Parameters	Total (n=397)	EI group (n=102)	DI group			P value (EI vs. DI)	P value (EI vs. LI)
			Total (n=295)	HFNC/NIV group (n=194)	LI group (n=101)		
IL-6 (pg/mL)	40.36 [16.21, 85.91]	75.08 [40.23, 156.6]	31.03 [13.4, 70.1]	29.82 [11.63, 67.37]	37.32 [16.21, 87.5]	<0.001*	<0.001*
Procalcitonin (ng/mL)	0.22 [0.09, 0.72]	0.49 [0.18, 2.15]	0.15 [0.07, 0.53]	0.16 [0.07, 0.43]	0.15 [0.08, 0.69]	<0.001*	<0.001
NT-proBNP (pg/mL)	457 [157, 1,813]	810 [257, 5,102]	330 [126, 1,089]	231 [90, 825]	556 [269, 1,963]	0.001*	0.21
CRP (mg/dL)	83 [38, 143]	124 [56, 177]	74 [36, 133]	80 [42, 138]	56 [28, 109]	0.001*	<0.001
Ferritin (mcg/L)	1260 [560, 2,396]	1,251 [550, 2,896]	1,270 [560, 2,252]	1,131 [489, 1,981]	1,671 [792, 2,979]	0.70	0.17
D-dimer (mg/L)	1,228 [729, 2,826]	1,471 [861, 3,312]	1,186 [677, 2,610]	971 [626, 1,832]	1,537 [980, 5,017]	0.041*	0.39

Data are presented as median [IQR]. *, P<0.05. The primary analysis of our study is the comparison between EI and DI groups. EI, early intubation; DI, deferred intubation; HFNC, high-flow nasal cannula; NIV, non-invasive ventilation; LI, late intubation; IL-6, interleukin-6; NT-proBNP, N-terminal pro B-type natriuretic peptide; CRP, C-reactive protein; IQR, interquartile range.

Table S2 Cox proportional hazards model on successful ICU discharge and mortality between EI and LI groups

Parameters	Successful ICU discharge				Mortality			
	HR [†] (95% CI)	P value [§]	aHR [†] (95% CI)	P value [¶]	HR [†] (95% CI)	P value [§]	aHR [†] (95% CI)	P value [¶]
EI vs. LI	1.88 (1.24–2.86)	0.003	1.81 (1.18–2.79)	0.007	1.21 (0.72–2.04)	0.47		
Age	0.97 (0.96–0.98)	<0.001	0.97 (0.96–0.99)	<0.001	1.03 (1.01–1.05)	0.002	1.02 (1.00–1.05)	0.07
Male	0.74 (0.49–1.11)	0.14			0.99 (0.59–1.68)	0.98		
BMI	1.02 (0.99–1.05)	0.14			0.95 (0.91–0.997)	0.04	0.99 (0.95–1.04)	0.74
ARDS	0.76 (0.51–1.15)	0.20			0.72 (0.43–1.21)	0.21		
Septic shock	0.29 (0.21–0.41)	<0.001	0.86 (0.46–1.58)	0.62	0.66 (0.39–1.13)	0.13		
APACHE II	0.93 (0.89–0.97)	<0.001	0.94 (0.91–0.98)	0.002	1.11 (1.07–1.15)	<0.001	1.09 (1.04–1.13)	<0.001
Antiviral drugs								
Favipiravir	0.70 (0.45–1.08)	0.11			0.79 (0.45–1.39)	0.42		
Remdesivir	0.89 (0.51–1.54)	0.67			0.91 (0.46–1.80)	0.78		
Immunosuppressive drugs								
Corticosteroid	0.57 (0.18–1.81)	0.34			0.44 (0.14–1.42)	0.17		
Tocilizumab	0.91 (0.60–1.40)	0.68			0.61 (0.34–1.10)	0.10		
Prone positioning								
Awake prone	0.65 (0.39–1.07)	0.09	0.54 (0.32–0.92)	0.02	0.70 (0.37–1.32)	0.27	0.73 (0.38–1.38)	0.33
Prone with paralysis	0.41 (0.24–0.71)	0.001	0.34 (0.19–0.59)	<0.001	0.46 (0.22–0.95)	0.04	0.57 (0.27–1.21)	0.14
Inotropes/vasopressors	0.43 (0.28–0.64)	<0.001	0.49 (0.27–0.90)	0.02	1.9 (1.01–3.60)	0.048	2.95 (1.44–6.06)	0.003

[†], HR <1.0 means less ICU-free days; [‡], HR >1.0 means a higher mortality rate; [§], P value for HR (95% CI); [¶], P value for aHR (95% CI). ICU, intensive care unit; EI, early intubation; LI, late intubation; HR, hazard ratio; CI, confident interval; aHR, adjusted hazard ratio; BMI, body mass index; ARDS, acute respiratory distress syndrome; APACHE II, acute physiology and chronic health evaluation II.