

## Supplementary Information

Supplementary Table 1. Unmatched and propensity score-matched groups within ‘early MV’ population.

	<b>Unmatched (n=1824)</b>	<b>Matched (n=295)</b>	<b>p</b>	<b>SMD</b>
Age	73.00 [63.00, 80.00]	71.00 [61.00, 80.00]	0.320	0.071
Sex			0.764	0.023
Male	1164 ( 63.8)	185 ( 62.7)		
Female	660 ( 36.2)	110 ( 37.3)		
BMI	21.94 [19.20, 24.79]	21.71 [18.72, 24.80]	0.545	0.038
Septic shock				
Vasopressor	777 ( 42.6)	91 ( 30.8)	<0.001	0.246
Lactate >2 mmol/L	1328 ( 72.8)	202 ( 68.5)	0.141	0.095
Comorbidities				
Cardiovascular disease	435 ( 23.8)	78 ( 26.4)	0.373	0.060
Chronic lung disease	320 ( 17.5)	30 ( 10.2)	0.002	0.215
Chronic neurologic disease	463 ( 25.4)	67 ( 22.7)	0.362	0.063
Chronic liver disease	174 ( 9.5)	32 ( 10.8)	0.550	0.043
Diabetes mellitus	710 ( 38.9)	108 ( 36.6)	0.488	0.048
Chronic kidney disease	263 ( 14.4)	48 ( 16.3)	0.456	0.051
Connective tissue disease	49 ( 2.7)	9 ( 3.1)	0.870	0.022
Immunosuppressed	65 ( 3.6)	18 ( 6.1)	0.054	0.119
Hematologic malignancy	133 ( 7.3)	23 ( 7.8)	0.851	0.019
Solid malignant tumor	562 ( 30.8)	81 ( 27.5)	0.274	0.074
Respiratory infection	1140 ( 62.5)	116 ( 39.3)	<0.001	0.477
Vital signs				
SBP (mmHg)	105.00 [86.00, 126.00]	102.00 [87.50, 120.00]	0.235	0.070
DBP (mmHg)	61.00 [51.00, 73.00]	60.00 [50.00, 72.00]	0.679	0.001
HR (beats/min)	109.00 [91.00, 126.00]	110.00 [90.50, 124.00]	0.664	0.040
RR (breaths/min)	22.00 [18.00, 26.00]	24.00 [20.00, 29.00]	<0.001	0.323
Lactate (mmol/L)	3.80 [2.00, 7.00]	3.60 [1.70, 5.91]	0.061	0.190
SOFA score	8.00 [5.00, 10.00]	6.00 [5.00, 9.00]	<0.001	0.331
ICU mortality	707 ( 38.8)	107 ( 36.3)	0.453	0.051
In-hospital mortality	878 ( 48.1)	132 ( 44.7)	0.308	0.068
Hospital duration (days)	19.00 [8.00, 37.00]	18.00 [8.00, 35.50]	0.674	0.052
ICU duration (days)	7.00 [3.00, 15.00]	7.00 [3.00, 14.00]	0.511	0.054
MV duration (days)	5.00 [2.00, 13.00]	4.00 [2.00, 10.50]	0.063	0.074

Supplementary Table 2. Unmatched and propensity score-matched groups within ‘delayed MV’ population.

	<b>Unmatched (n=26)</b>	<b>Matched (n=295)</b>	<b>p</b>	<b>SMD</b>
Age	64.00 [55.25, 67.75]	71.00 [59.50, 79.00]	0.010	0.471
Sex			0.452	0.195
Male	14 ( 53.8)	187 ( 63.3)		
Female	12 ( 46.2)	108 ( 36.6)		
BMI	21.11 [19.89, 24.02]	22.01 [18.82, 24.84]	0.750	0.006
Septic shock				
Vasopressor	7 ( 26.9)	101 ( 34.2)	0.589	0.159
Lactate >2 mmol/L	17 ( 65.4)	189 ( 64.1)	1.000	0.028
Comorbidities				
Cardiovascular disease	3 ( 11.5)	70 ( 23.7)	0.239	0.324
Chronic lung disease	1 ( 3.8)	38 ( 12.9)	0.299	0.331
Chronic neurologic disease	3 ( 11.5)	56 ( 19.0)	0.499	0.208
Chronic liver disease	3 ( 11.5)	35 ( 11.9)	1.000	0.010
Diabetes mellitus	2 ( 7.7)	100 ( 33.9)	0.011	0.682
Chronic kidney disease	1 ( 3.8)	47 ( 15.9)	0.171	0.413
Connective tissue disease	1 ( 3.8)	12 ( 4.1)	1.000	0.011
Immunosuppressed	1 ( 3.8)	15 ( 5.1)	1.000	0.060
Hematologic malignancy	4 ( 15.4)	29 ( 9.8)	0.577	0.168
Solid malignant tumor	5 ( 19.2)	86 ( 29.2)	0.396	0.233
Respiratory infection	1 ( 3.8)	125 ( 42.4)	<0.001	1.028
Vital signs				
SBP (mmHg)	112.50 [93.50, 131.50]	105.00 [91.00, 123.00]	0.158	0.335
DBP (mmHg)	68.50 [54.25, 95.00]	62.00 [52.50, 71.00]	0.130	0.401
HR (beats/min)	106.50 [92.00, 118.75]	109.00 [93.50, 124.00]	0.808	0.052
RR (breaths/min)	32.00 [27.00, 37.75]	25.00 [20.00, 30.00]	<0.001	0.861
Lactate (mmol/L)	3.00 [1.90, 3.88]	3.11 [1.80, 6.05]	0.258	0.461
SOFA score	5.00 [4.00, 6.75]	7.00 [5.00, 9.00]	0.003	0.662
ICU mortality	8 ( 30.8)	137 ( 46.4)	0.182	0.326
In-hospital mortality	11 ( 42.3)	165 ( 55.9)	0.257	0.275
Hospital duration (days)	29.50 [15.25, 54.50]	23.00 [12.00, 48.50]	0.274	0.064
ICU duration (days)	15.00 [7.00, 24.25]	12.00 [6.00, 20.00]	0.414	0.107
MV duration (days)	7.50 [3.00, 17.25]	6.00 [2.00, 13.50]	0.427	0.161

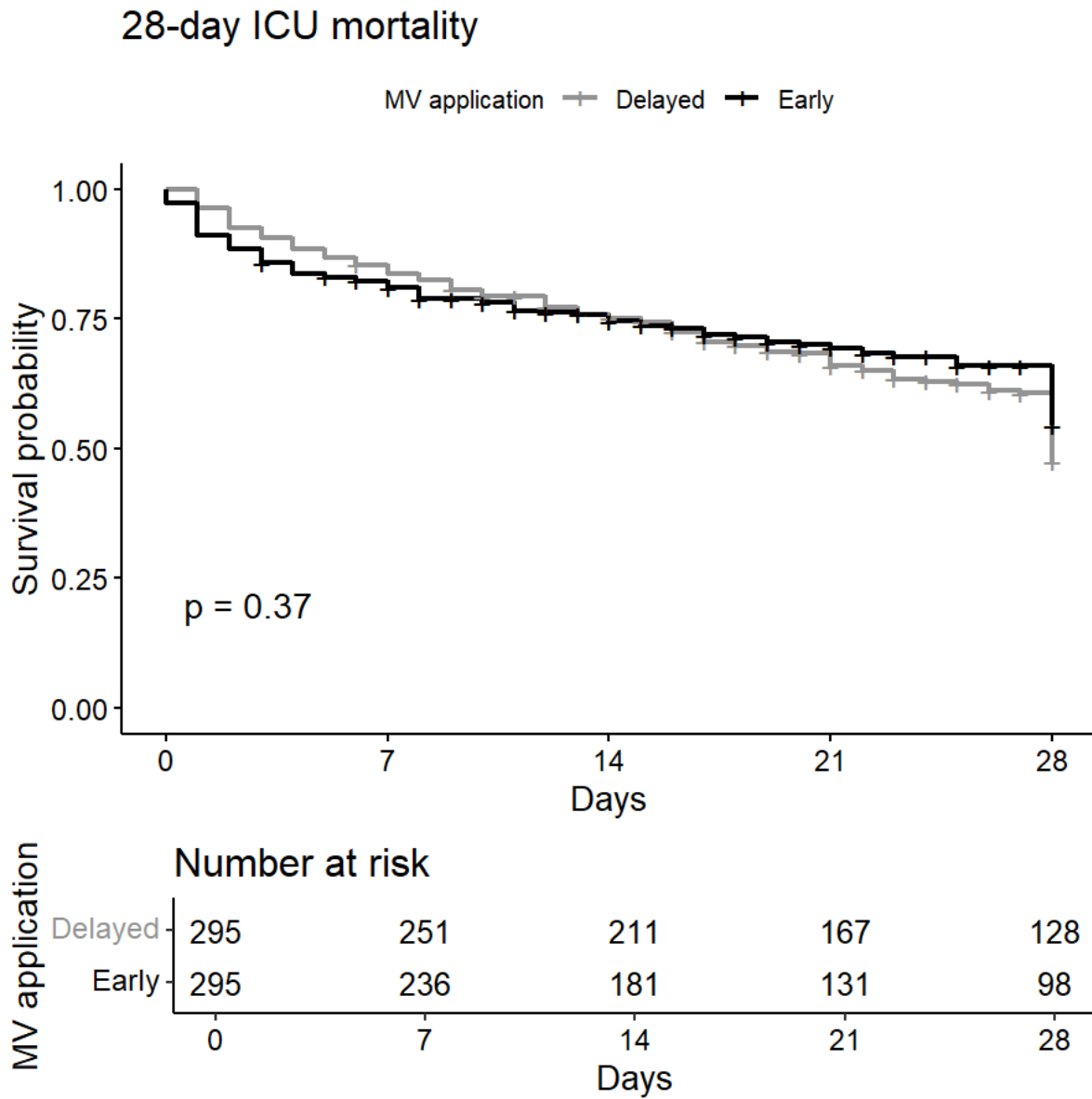
Supplementary Table 3. Propensity score matching using available variables on the day of MV initiation.

	<b>Early MV (n=214)</b>	<b>Delayed MV (n=214)</b>	<b>p</b>	<b>SMD</b>
Age	71.50 [60.00, 79.00]	69.50 [60.00, 78.00]	0.446	0.072
Sex			0.040	0.209
Male	153 (71.5)	132 (61.7)		
Female	61 (28.5)	82 (38.3)		
	21.98 [19.47, 24.61]	21.74 [18.82, 24.60]	0.742	0.015
Comorbidities				
Cardiovascular disease	50 (23.4)	48 (22.4)	0.908	0.022
Chronic lung disease	26 (12.1)	26 (12.1)	1.000	<0.001
Chronic neurologic disease	35 (16.4)	33 (15.4)	0.895	0.026
Chronic liver disease	32 (15.0)	28 (13.1)	0.676	0.054
Diabetes mellitus	69 (32.2)	70 (32.7)	1.000	0.01
Chronic kidney disease	28 (13.1)	28 (13.1)	1.000	<0.001
Connective tissue disease	8 ( 3.7)	7 ( 3.3)	1.000	0.025
Immunosuppressed	12 ( 5.6)	11 ( 5.1)	1.000	0.021
Hematologic malignancy	13 ( 6.1)	19 ( 8.9)	0.358	0.107
Solid malignant tumor	65 (30.4)	66 (30.8)	1.000	0.01
Vasopressor	89 (41.6)	79 (36.9)	0.373	0.096
Initial lactate (mmol/L)	4.60 [2.32, 7.68]	3.45 [1.90, 6.36]	0.026	0.236
Site of Infection			0.921	0.019
Respiratory	86 (40.2)	84 (39.3)		
Other than respiratory	128 (59.8)	130 (60.7)		
Initial SOFA score	8.00 [5.25, 11.00]	7.00 [4.00, 9.00]	<0.001	0.452
SOFA score on ICU day 1	12.00 [10.00, 15.00]	9.00 [6.00, 11.00]	<0.001	1.082
SOFA score on MV initiation day	12.00 [10.00, 15.00]	12.00 [10.00, 15.00]	0.433	0.087
Lactate on MV initiation day	4.50 [2.00, 8.47]	3.95 [1.96, 7.72]	0.431	0.103
Vasopressor on MV initiation day	188 (87.9)	188 (87.9)	1.000	<0.001
Outcome				
ICU mortality	94 (43.9)	95 (44.4)	1.000	0.009

When the patients who received MV on ICU day 1 was compared to those who received MV on ICU day 2 and 3, no significant difference was observed in ICU mortality (43.9% vs. 44.4%; odds ratio, 0.98; 95% confidence interval, 0.66–1.46;  $p=1.000$ ).

The vital sign information was not available on day 1, 2, and 3 of ICU stay and was omitted from the variables for propensity score matching. All other methods remained the same as the primary analysis.

Supplementary Figure 1. Survival plot showing 28-day mortality of ‘early MV’ and ‘delayed MV’ groups. *P*-value was calculated using log-rank test.



MV; mechanical ventilation, ICU; intensive care unit