

**Supplementary Material 1. Comparison of absolute and average lymphocyte and monocyte count between two cohorts.**

**Mann-Whitney test.**

	discovery cohort	n	validation cohort	n	p value
<b>Absolute lymphocyte count (x10<sup>9</sup>/L)</b>					
<i>Lymph W0</i>	0.7975 ± 0.5410 (0.09-4.37)	235	0.7437 ± 0.4340 (0.06-2.40)	115	0.523
<i>Lymph W1</i>	0.9213 ± 0.5858 (0.13-2.77)	198	0.7205 ± 0.4456 (0.10-3.04)	92	<b>0.009</b>
<i>Lymph W2</i>	0.8092 ± 0.5789 (0.05-3.36)	160	0.6763 ± 0.4227 (0.09-1.95)	72	0.151
<i>Lymph W3</i>	0.7907 ± 0.6548 (0.07-3.54)	108	0.7235 ± 0.7562 (0.16-4.66)	43	0.380
<i>Lymph W4</i>	0.9809 ± 0.6319 (0.05-3.38)	131	1.016 ± 0.8717 (0.16-4.46)	48	0.529
<b>Absolute monocyte count (x10<sup>9</sup>/L)</b>					
<i>Mono W0</i>	0.3779 ± 0.2177 (0.00-1.08)	234	0.3743 ± 0.2099 (0.03-1.08)	115	0.893
<i>Mono W1</i>	0.4202 ± 0.2479 (0.02-1.28)	198	0.3791 ± 0.2194 (0.04-1.12)	92	0.205
<i>Mono W2</i>	0.3549 ± 0.2476 (0.03-1.48)	160	0.3421 ± 0.2264 (0.04-1.26)	72	0.771
<i>Mono W3</i>	0.3403 ± 0.2567 (0.00-1.73)	108	0.3351 ± 0.3420 (0.03-2.07)	43	0.385
<i>Mono W4</i>	0.3466 ± 0.1914 (0.03-0.91)	131	0.4206 ± 0.3218 (0.02-1.40)	48	0.588
<b>Average lymphocyte count (x10<sup>9</sup>/L)</b>					
<i>Lymph W0-1</i>	0.8483 ± 0.4872 (0.090-3.260)	235	0.7435 ± 0.3882 (0.155-2.720)	115	0.062
<i>Lymph W0-2</i>	0.8474 ± 0.4852 (0.113-3.260)	235	0.7401 ± 0.3927 (0.133-2.720)	116	<b>0.047</b>
<i>Lymph W0-3</i>	0.8484 ± 0.4937 (0.113-3.260)	235	0.7484 ± 0.4309 (0.133-3.367)	116	0.060
<i>Lymph W0-4</i>	0.8602 ± 0.4794 (0.113-2.633)	235	0.7834 ± 0.4443 (0.133-3.367)	116	0.137
<b>Average monocyte count (x10<sup>9</sup>/L)</b>					
<i>Mono W0-1</i>	0.3982 ± 0.2001 (0.020-1.280)	235	0.3767 ± 0.1857 (0.040-1.120)	115	0.387
<i>Mono W0-2</i>	0.3877 ± 0.1904 (0.045-1.070)	235	0.3727 ± 0.1829 (0.080-0.913)	116	0.476
<i>Mono W0-3</i>	0.3805 ± 0.1877 (0.045-1.070)	235	0.3770 ± 0.2034 (0.088-1.340)	116	0.652
<i>Mono W0-4</i>	0.3770 ± 0.1781 (0.045-1.070)	235	0.3834 ± 0.2076 (0.098-1.340)	116	0.829

**Supplementary Material 2. Average lymphocyte and monocyte count of both cohorts at baseline and during first four weeks after admission. Mann-Whitney test.**

	discovery cohort			validation cohort		
	non-survivor	survivor	<i>p</i> value	non-survivor	survivor	<i>p</i> value
<i>Lymph W0</i>	0.618±0.383	0.917±0.597	<0.001	0.573±0.348	0.838±0.450	<0.001
<i>Lymph W0-1</i>	0.651±0.361	0.980±0.516	<0.001	0.560±0.300	0.845±0.396	<0.001
<i>Lymph W0-2</i>	0.626±0.350	0.995±0.507	<0.001	0.544±0.293	0.851±0.400	<0.001
<i>Lymph W0-3</i>	0.622±0.364	1.000±0.512	<0.001	0.546±0.306	0.863±0.451	<0.001
<i>Lymph W0-4</i>	0.626±0.378	1.017±0.477	<0.001	0.557±0.305	0.912±0.461	<0.001
<i>Mono W0</i>	0.373±0.239	0.381±0.203	0.347	0.322±0.184	0.403±0.219	0.040
<i>Mono W0-1</i>	0.368±0.214	0.418±0.188	0.009	0.307±0.150	0.415±0.193	0.003
<i>Mono W0-2</i>	0.348±0.197	0.414±0.182	0.002	0.313±0.165	0.407±0.185	0.005
<i>Mono W0-3</i>	0.335±0.191	0.410±0.180	0.001	0.311±0.166	0.414±0.214	0.006
<i>Mono W0-4</i>	0.323±0.181	0.413±0.167	<0.001	0.310±0.164	0.425±0.219	0.002

Supplementary Material 3. Relationship between average lymphocytes/monocytes/PBMC in the first two weeks and other prognostic factors in the discovery cohort.  $p < 0.05$ , Pearson analysis and Spearman analysis.

	<i>Mono W0-2</i>		<i>Lymph W0-2</i>		<i>PBMC W0-2</i>	
	r	Sig.	r	Sig.	r	Sig.
<b>FVC (n=186)</b>	0.109	0.139	0.219	<b>0.003</b>	0.211	<b>0.004</b>
<b>OI (n=235)*</b>	0.246	<b>&lt;0.001</b>	0.413	<b>&lt;0.001</b>	0.407	<b>&lt;0.001</b>
<b>HRCT score (n=221)</b>	-0.252	<b>&lt;0.001</b>	-0.416	<b>&lt;0.001</b>	-0.413	<b>&lt;0.001</b>
<b>CRP (n=235)</b>	-0.172	<b>0.008</b>	-0.123	0.059	-0.152	<b>0.019</b>
<b>SF (n=232)</b>	-0.080	0.223	-0.197	<b>0.003</b>	-0.183	<b>0.005</b>
<b>LDH (n=230)</b>	-0.287	<b>&lt;0.001</b>	-0.322	<b>&lt;0.001</b>	-0.348	<b>&lt;0.001</b>
<b>Ulcers (n=235)</b>	-0.021	0.751	-0.043	0.515	-0.028	0.670
<b>Arthritis (n=235)</b>	-0.018	0.787	0.045	0.491	0.014	0.827
<b>Muscular involvement (n=235)</b>	-0.016	0.805	-0.014	0.829	-0.018	0.789
<b>Pneumomediastinum /Pneumothorax (n=235)</b>	-0.130	<b>0.046</b>	-0.231	<b>&lt;0.001</b>	-0.213	<b>0.001</b>

\*OI, oxygenation index.