Supplementary Information

Table S1. Characterization of participants according to signs and symptoms of COVID-19.

Participant's Classification	Symptoms, Signs, and Parameters
Healthy Controls	- Negative for SARS-Cov-2 nucleic acid - No clinical signs
Mild	- Positive for SARS-Cov-2 nucleic acid and/or serological test - With or without the following symptoms: diarrhea, cough, fever, headache, loss of taste (ageusia) / smell (anosmia), myalgia, nausea, and vomiting - Oxygen saturation 94-99 % on room air
Moderate	- Positive for SARS-Cov-2 nucleic acid and/or serological test - Manifestation of mild disease symptoms including dyspnea - Oxygen saturation ≥ 93% on room air and PaO_2/FiO_2 250-300 mmHg - Do not need invasive ventilation: nasal catheter (oxygen 2-4 L/min) or oxygen reservoir (oxygen 4-12 L/min)
Severe	- Positive for SARS-Cov-2 nucleic acid and/or serological test - Possible Admission to intensive-care units - Severe respiratory distress - Oxygen saturation < 93 % on room air and PaO_2/FiO_2 < 250 mmHg - Need no-invasive ventilation: oxygen reservoir or non-rebreathing face mask (oxygen 10-15 L/min)
Critical	- Positive for SARS-Cov-2 nucleic acid and/or serological test - Admission to intensive-care units - Acute respiratory distress syndrome - Need invasive ventilation - PaO_2/FiO_2 < 200 mmHg - With or without one or more additional parameters: need hemodialysis, sepsis, septic shock, and multiorgan dysfunction

The participants were classified into five clinical groups, established by the symptoms severity, clinical parameters, patient's management and laboratory findings, following the WHO recommendations [1–8]. **Abbreviations:** FiO_2 (fraction of inspired oxygen); PaO_2 (partial pressure of oxygen).

Table S2. Information about r and *p*-values of the correlation matrix shown in Figure 2.

Comparison	Row	Column	Correlation	*P-value*
1	Mild	Moderate	-0.231155018	0.000332594
2	Sat O_2	Moderate	0.256343743	7.28466E-05
3	Lymphocyte	Moderate	0.152904628	0.018504855
4	BMI	Moderate	-0.077106244	0.239009016
5	Hypertension	Moderate	-0.004953154	0.940185148
6	Male	Moderate	-0.001387137	0.983052766
7	Severe	Moderate	-0.315407459	7.15624E-07
8	Clinical Score	Moderate	-0.361940265	9.56482E-09
9	Critical	Moderate	-0.328051133	2.37513E-07
10	Neutrophil	Moderate	-0.194937891	0.002577148
11	sTREM-1	Moderate	-0.305649126	1.62032E-06
12	Age	Moderate	-0.232030568	0.00031521
13	IL-10	Moderate	-0.099067545	0.171587141
14	IL-6	Moderate	-0.333358878	2.94361E-06
15	IL-8	Moderate	-0.205944097	0.005412874

16	IL-1B	Moderate	-0.202705785	0.004695755
17	IL-12	Moderate	0.047893541	0.508345685
18	TNF	Moderate	0.001018876	0.988779933
19	Sat O_2	Mild	0.493797962	8.69017E-16
20	Lymphocyte	Mild	0.473795411	1.15153E-14
21	BMI	Mild	-0.176923201	0.00654393
22	Hypertension	Mild	0.034172795	0.604566858
23	Male	Mild	-0.187577951	0.003752779
24	Severe	Mild	-0.319801075	4.90581E-07
25	Clinical Score	Mild	-0.684083102	4.7457E-34
26	Critical	Mild	-0.332620874	1.57451E-07
27	Neutrophil	Mild	-0.486848071	1.65221E-15
28	sTREM-1	Mild	-0.473164064	1.26229E-14
29	Age	Mild	-0.443947281	7.24186E-13
30	IL-10	Mild	-0.329159002	3.1354E-06
31	IL-6	Mild	-0.524005077	1.19155E-14
32	IL-8	Mild	-0.47734009	1.08997E-11
33	IL-1B	Mild	0.003209787	0.964663496
34	IL-12	Mild	-0.033696836	0.641772093
35	TNF	Mild	-0.028596493	0.693008796
36	Lymphocyte	Sat O_2	0.401200145	1.84023E-10
37	BMI	Sat O_2	-0.235201534	0.000301552
38	Hypertension	Sat O_2	-0.064325069	0.33249921
39	Male	Sat O_2	-0.101669422	0.120916986
40	Severe	Sat O_2	-0.306087002	1.82232E-06
41	Clinical Score	Sat O_2	-0.61107148	2.39767E-25
42	Critical	Sat O_2	-0.321999042	4.80411E-07
43	Neutrophil	Sat O_2	-0.423331473	1.36418E-11
44	sTREM-1	Sat O_2	-0.417465281	2.77006E-11
45	Age	Sat O_2	-0.387049158	8.81104E-10
46	IL-10	Sat O_2	-0.2948569	3.81076E-05
47	IL-6	Sat O_2	-0.477628124	6.21986E-12
48	IL-8	Sat O_2	-0.416622922	7.27459E-09
49	IL-1B	Sat O_2	-0.092911818	0.202305851
50	IL-12	Sat O_2	-0.008326473	0.909224231
51	TNF	Sat O_2	-0.120279514	0.098329914
52	BMI	Lymphocyte	0.105807313	0.105686046
53	Hypertension	Lymphocyte	0.102924798	0.117960673
54	Male	Lymphocyte	-0.195809682	0.002462766
55	Severe	Lymphocyte	-0.24467198	0.000141946
56	Clinical Score	Lymphocyte	-0.504559851	1.0349E-16
57	Critical	Lymphocyte	-0.284427783	8.67676E-06
58	Neutrophil	Lymphocyte	-0.244465784	0.000143855
59	sTREM-1	Lymphocyte	-0.450771695	2.91027E-13
60	Age	Lymphocyte	-0.510840741	3.72578E-17
61	IL-10	Lymphocyte	-0.4656599	1.00449E-11
62	IL-6	Lymphocyte	-0.570302316	1.30747E-17
63	IL-8	Lymphocyte	-0.55135014	8.75794E-16
64	IL-1B	Lymphocyte	-0.055937205	0.439722695

65	IL-12	Lymphocyte	-0.066996635	0.35458038
66	TNF	Lymphocyte	-0.069797294	0.334778798
67	Hypertension	BMI	0.337632848	1.54209E-07
68	Male	BMI	0.010023149	0.878527219
69	Severe	BMI	0.090491035	0.16677444
70	Clinical Score	BMI	0.199649214	0.002103156
71	Critical	BMI	0.121363246	0.063252208
72	Neutrophil	BMI	0.144400816	0.026867836
73	sTREM-1	BMI	0.080909355	0.216558849
74	Age	BMI	-0.111379628	0.088452531
75	IL-10	BMI	-0.064540076	0.375061815
76	IL-6	BMI	0.10571597	0.149870463
77	IL-8	BMI	0.079989279	0.285789589
78	IL-1B	BMI	-0.048881404	0.500756237
79	IL-12	BMI	-0.049949198	0.491436097
80	TNF	BMI	-0.003880337	0.957399957
81	Male	Hypertension	0.008049538	0.902941275
82	Severe	Hypertension	0.027496362	0.676949976
83	Clinical Score	Hypertension	-0.02087052	0.751844854
84	Critical	Hypertension	-0.052086696	0.429754465
85	Neutrophil	Hypertension	-0.039892941	0.545451521
86	sTREM-1	Hypertension	-0.024131327	0.714644644
87	Age	Hypertension	-0.048797374	0.459490751
88	IL-10	Hypertension	-0.176737196	0.015255029
89	IL-6	Hypertension	-0.076601215	0.301366345
90	IL-8	Hypertension	-0.155970027	0.037078899
91	IL-1B	Hypertension	-0.088646282	0.225133769
92	IL-12	Hypertension	-0.070127011	0.337623046
93	TNF	Hypertension	0.089498929	0.220686885
94	Severe	Male	0.036825251	0.572678206
95	Clinical Score	Male	0.191474889	0.003080732
96	Critical	Male	0.12249276	0.05971684
97	Neutrophil	Male	0.031451675	0.629982399
98	sTREM-1	Male	0.163859007	0.011525823
99	Age	Male	0.104158239	0.109738178
100	IL-10	Male	0.247127239	0.000548883
101	IL-6	Male	0.119514701	0.102335595
102	IL-8	Male	0.173228274	0.019697498
103	IL-1B	Male	-0.140872767	0.050688253
104	IL-12	Male	-0.051524688	0.476695911
105	TNF	Male	-0.075172413	0.29879757
106	Clinical Score	Severe	0.06320037	0.332653938
107	Critical	Severe	-0.453856055	1.9146E-13
108	Neutrophil	Severe	0.091391754	0.160779086
109	sTREM-1	Severe	0.109629133	0.092205835
110	Age	Severe	0.223739234	0.000519861
111	IL-10	Severe	0.133051116	0.065803523
112	IL-6	Severe	0.339610294	1.86137E-06
113	IL-8	Severe	0.18170797	0.014360805

114	IL-1B	Severe	-0.087249961	0.227607984
115	IL-12	Severe	-0.047658186	0.510434151
116	TNF	Severe	-0.166640725	0.020545856
117	Critical	Clinical Score	0.814088698	2.18852E-57
118	Neutrophil	Clinical Score	0.60170919	9.89693E-25
119	sTREM-1	Clinical Score	0.670648205	2.51929E-32
120	Age	Clinical Score	0.527521057	2.22592E-18
121	IL-10	Clinical Score	0.39350729	1.63783E-08
122	IL-6	Clinical Score	0.706591772	9.50877E-30
123	IL-8	Clinical Score	0.611328472	6.24207E-20
124	IL-1B	Clinical Score	0.193142907	0.007119883
125	IL-12	Clinical Score	0.028906508	0.689851391
126	TNF	Clinical Score	0.13516282	0.060909273
127	Neutrophil	Critical	0.48144692	3.72683E-15
128	sTREM-1	Critical	0.544209066	1.13204E-19
129	Age	Critical	0.345890241	4.59209E-08
130	IL-10	Critical	0.247996578	0.000523876
131	IL-6	Critical	0.435159773	4.35884E-10
132	IL-8	Critical	0.418124958	4.71667E-09
133	IL-1B	Critical	0.27583581	0.000103287
134	IL-12	Critical	0.036207063	0.617144789
135	TNF	Critical	0.200079903	0.005273927
136	sTREM-1	Neutrophil	0.594134952	5.25175E-24
137	Age	Neutrophil	0.337763026	9.83417E-08
138	IL-10	Neutrophil	0.251205264	0.000440416
139	IL-6	Neutrophil	0.409908655	5.16878E-09
140	IL-8	Neutrophil	0.374089043	2.1304E-07
141	IL-1B	Neutrophil	0.115544468	0.109569412
142	IL-12	Neutrophil	0.002980357	0.967187816
143	TNF	Neutrophil	0.159421183	0.026791288
144	Age	sTREM-1	0.488857505	1.21629E-15
145	IL-10	sTREM-1	0.347496792	7.87725E-07
146	IL-6	sTREM-1	0.565137436	2.94966E-17
147	IL-8	sTREM-1	0.579913342	1.18423E-17
148	IL-1B	sTREM-1	0.148895405	0.03877017
149	IL-12	sTREM-1	0.070661441	0.328814567
150	TNF	sTREM-1	0.107860689	0.13541786
151	IL-10	Age	0.362968733	2.28949E-07
152	IL-6	Age	0.560872117	5.71432E-17
153	IL-8	Age	0.537764866	5.89503E-15
154	IL-1B	Age	0.111105111	0.123984768
155	IL-12	Age	0.053394695	0.460824155
156	TNF	Age	0.083246073	0.249741408
157	IL-6	IL-10	0.595828669	1.88665E-19
158	IL-8	IL-10	0.691523071	4.45477E-27
159	IL-1B	IL-10	0.084361802	0.244669961
160	IL-12	IL-10	0.066528425	0.359225709
161	TNF	IL-10	0.029557013	0.684031098
162	IL-8	IL-6	0.75569478	2.30662E-34

163	IL-1B	IL-6	0.139639406	0.055973197
164	IL-12	IL-6	0.065061294	0.375043236
165	TNF	IL-6	0.002706864	0.9705909
166	IL-1B	IL-8	0.042398459	0.57090717
167	IL-12	IL-8	0.004694633	0.949987402
168	TNF	IL-8	-0.008794129	0.906467413
169	IL-12	IL-1B	0.268492309	0.000159788
170	TNF	IL-1B	0.328036453	3.20628E-06
171	TNF	IL-12	0.377835832	6.05668E-08

Table S3. Multivariate Regression Model* for Death in the Study Population.

Variable	IRR** (95% Confidence Interval)	*p*-value
Sex (Male)	1.05 (0.75 – 1.47)	0.771
Age over 60 years	2.05 (1.31 – 3.22)	0.002
Days of Disease	1.01 (0.90 – 1.04)	0.174
Comorbidities	1.11 (0.90 – 1.24)	0.069
Severity Score	1.65 (1.23 – 2.22)	0.001
Neutrophils-Lymphocytes Ratio	0.99 (0.90 – 1.10)	0.612
High TREM-1	1.05 (0.75 – 1.47)	0.003

*Model p-value < 0.0001, Deviance Goodness-of-fit 65.35, p = 1.00, Pearson Goodness-of-fit 59.65, p = 1.00.
**Incidence Rate Ratio

Table S4. Hospital support, supportive therapies, and medications of patients moderate, severe, and critical infected with SARS-CoV-2.

During Hospital Stay	Moderate/Severe/critical N=33
Hospital support, No. (%)	
Infirmary	20 (60.6)
Intensive care unit (ICU)	13 (39.4)
Hospitalization data, No.	
Hospitalization days, median (IQR)	11 (3-30)
Number of days since symptom onset (IQR)	6 (3-11)
Respiratory support received (%)	
Nasal-cannula oxygen	13 (39.4)
Oxygen mask	11(33.3)
Invasive mechanical ventilation	9 (27.3)
Oxygen Saturation median (IQR)	89 (54-99)
Medications	
Glucocorticoid	31 (93.9)
Antibiotics	33 (100)
Oseltamivir	19 (57.6)
Chloroquine/Hydroxychloroquine	10 (30.3)
Anticoagulants	11 (33.3)
Death	24 (72.7)

Abbreviation: IQR, interquartile range, Data are median (IQR), n (%), or n/N.

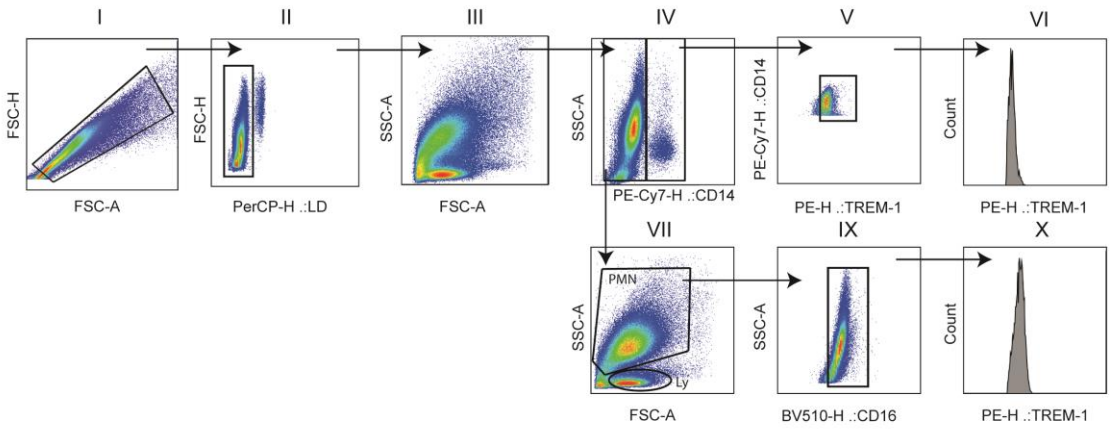

Figure S1. Gating strategy used for flow cytometry analysis of peripheral blood leukocytes. Dot plots shown a representative gating strategy for the analysis of (I) singlet gating based FSC-H/FSC-A, (II) FSC-H/FVS-620 (viable cells), (III) SSC-A/FSC-A, followed by (IV) SSC-A/ leukocytes gated according to their side scatter and CD14 (PE-Cy7) antibody staining patterns, (V) CD14 (PE-Cy7) antibody staining patterns versus TREM-1 (PE) antibody staining patterns, with subsequent (VI) TREM-1 (PE) mean fluorescence intensity (MFI); (VII) light scatter flow cytometry profile for cells based on forward scatter (FSC-A) related to size, and side scatters (SSC-A) related to granularity; (IX) gated according to their side scatter and CD16 (BV510) antibody staining patterns, with subsequent (X) TREM-1 mean fluorescence intensity (MFI).

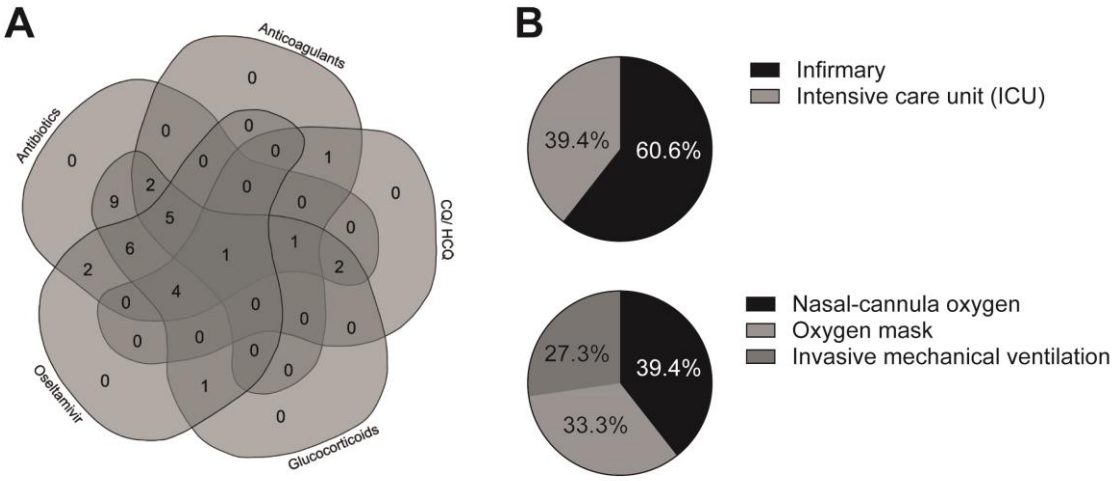

Figure S2. Venn diagram of the pharmacological treatment of patients with COVID-19 and hospital/ respiratory support during hospitalization. (A) Venn diagram showed all pharmacological treatment relations between Glucocorticoid, Antibiotics, Oseltamivir, Chloroquine/Hydroxychloroquine and Anticoagulants of different sets of patients with COVID-19 in hospital care. (B) Demonstrative percentages of patients in distinctive hospitals and respiratory support during hospitalization.

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