Supplementary Materials:

**Table S1.** Comparison of the cytokine profile.

| | **Intubation or death (*N* = 40)** | **Non-Intubation or death (*N* = 68)** | ***P* value** |
|---|---|---|---|
| BDNF | 59.88 (108.75) | 60.38 (184.53) | 0.967 |
| EGF | 2.36 (4.37) | 1.88 (8.49) | 1.000 |
| Eotaxin | 13.58 (8.54) | 15.03 (10.22) | 0.410 |
| FGF2 | 1.07 (1.92) | 0.80 (2.91) | 0.879 |
| GMCSF | 11.26 (15.29) | 13.09 (34.34) | 0.397 |
| GROa | 2.82 (3.83) | 3.48 (4.31) | 0.346 |
| HGF | 294.75 (486.25) | 139.25 (142.43) | <0.001 |
| IFNa | 0.45 (1.33) | 0.58 (2.14) | 0.712 |
| IFNg | 9.72 (11.17) | 8.29 (6.84) | 0.383 |
| IL1a | 3.37 (10.83) | 1.81 (7.58) | 0.127 |
| IL1b | 6.31 (10.72) | 6.86 (10.09) | 0.208 |
| IL10 | 1.8 (2.85) | 1.73 (2.02) | 0.911 |
| IL12p70 | 3.73 (2.62) | 3.32 (3.25) | 0.985 |
| IL13 | 2.19 (2.55) | 2.06 (3.46) | 0.672 |

| | | | |
|---|---|---|---|
| IL15 | 9.55 (19.65) | 13.83 (17.47) | 0.058 |
| IL17a | 6.35 (18.35) | 7.32 (12.06) | 0.303 |
| IL18 | 58.98 (60.39) | 40.28 (48.09) | 0.160 |
| IL1RA | 644.67 (1312.68) | 604.75 (961.67) | 0.904 |
| IL2 | 10.91 (17.42) | 14.64 (20.59) | 0.185 |
| IL21 | 2.85 (7.97) | 3.70 (13.81) | 0.370 |
| IL22 | 6.62 (46.36) | 2.79 (20.08) | 0.257 |
| IL23 | 7.99 (7.58) | 7.67 (10.50) | 0.717 |
| IL27 | 19.43 (26.49) | 18.06 (44.09) | 0.755 |
| IL31 | 5.65 (6.44) | 5.01 (8.85) | 0.741 |
| IL4 | 5.60 (4.95) | 5.76 (7.88) | 0.851 |
| IL5 | 5.12 (36.16) | 6.1 (16.84) | 0.884 |
| IL6 | 9.06 (28.74) | 15 (20.69) | 0.270 |
| IL7 | 1.57 (3.01) | 1.69 (3.01) | 0.977 |
| IL8 | 2.08 (4.61) | 2.06 (3.57) | 0.705 |
| IL9 | 2.21 (2.81) | 2.03 (4.35) | 0.834 |
| IP1b | 53.33 (40.05) | 45 (47.97) | 0.794 |
| IP10 | 48.78 (46.14) | 43 (36.14) | 0.390 |
| LIF | 13.48 (20.55) | 15.70 (16.11) | 0.997 |
| MCP1 | 48.85 (62.81) | 35.97 (28.01) | 0.029 |
| MIP1a | 3.31 (12.61) | 3.39 (10.98) | 0.760 |

| | | | |
|---|---|---|---|
| NGFb | 4.36 (2.91) | 4.08 (3.59) | 0.975 |
| PDGFBB | 409.08 (1037.63) | 203 (591.37) | 0.042 |
| PIGF1 | 27.22 (116.59) | 4.24 (48.78) | 0.036 |
| RANTES | 23.43 (17.75) | 21.54 (19.79) | 0.942 |
| SCF | 8.42 (9.50) | 6.51 (5.98) | 0.408 |
| SDF1a | 713.92 (742.29) | 643 (500.75) | 0.441 |
| TNFa | 7.56 (11.04) | 5.85 (11.04) | 0.736 |
| TNFb | 3.31 (3.58) | 3.08 (5.33) | 0.804 |
| VEGFA | 205.5 (250.56) | 105.66 (162.2) | 0.012 |
| VEGFD | 11.3 (13.23) | 12.90 (13.34) | 0.185 |

Continuous variables are represented as [median (interquartile range—IQR)].

**Table S2.** Individual logistic regression model for each cytokines adjusted by gender and age.

| **cytokine** | ***p*-value** | **OR** | **CI 95%** | |
|---|---|---|---|---|
| | | | **Low** | **High** |
| BDNF | 0.910 | 0.988 | 0.808 | 1.210 |
| EGF | 0.841 | 0.984 | 0.838 | 1.155 |
| Eotaxin | 0.666 | 0.888 | 0.516 | 1.526 |
| FGF2 | 0.882 | 0.987 | 0.828 | 1.176 |
| GMCSF | 0.336 | 0.894 | 0.711 | 1.124 |
| GROa | 0.410 | 0.888 | 0.669 | 1.178 |
| HGF | 0.000 | 2.121 | 1.468 | 3.062 |
| IFNa | 0.933 | 1.006 | 0.870 | 1.165 |
| IFNg | 0.303 | 1.230 | 0.830 | 1.822 |
| IL1a | 0.166 | 1.081 | 0.968 | 1.208 |
| IL1b | 0.117 | 0.789 | 0.586 | 1.061 |
| IL10 | 0.947 | 1.013 | 0.696 | 1.474 |
| IL12p70 | 0.887 | 1.035 | 0.639 | 1.677 |
| IL13 | 0.608 | 0.941 | 0.746 | 1.187 |
| IL15 | 0.026 | 0.696 | 0.506 | 0.958 |
| IL17a | 0.267 | 0.872 | 0.685 | 1.110 |

| | | | | |
|---|---|---|---|---|
| IL18 | 0.222 | 1.212 | 0.890 | 1.652 |
| IL1RA | 0.993 | 0.999 | 0.830 | 1.203 |
| IL2 | 0.135 | 0.768 | 0.544 | 1.085 |
| IL21 | 0.391 | 0.947 | 0.838 | 1.072 |
| IL22 | 0.401 | 1.038 | 0.951 | 1.133 |
| IL23 | 0.722 | 0.943 | 0.683 | 1.302 |
| IL27 | 0.704 | 0.970 | 0.831 | 1.133 |
| IL31 | 0.754 | 0.956 | 0.723 | 1.265 |
| IL4 | 0.907 | 0.982 | 0.730 | 1.322 |
| IL5 | 0.693 | 1.029 | 0.894 | 1.184 |
| IL6 | 0.241 | 0.858 | 0.664 | 1.108 |
| IL7 | 0.988 | 0.998 | 0.769 | 1.296 |
| IL8 | 0.567 | 0.949 | 0.792 | 1.136 |
| IL9 | 0.974 | 1.005 | 0.752 | 1.342 |
| IP1b | 0.733 | 0.946 | 0.688 | 1.301 |
| IP10 | 0.713 | 1.064 | 0.766 | 1.477 |
| LIF | 0.909 | 1.019 | 0.739 | 1.405 |
| MCP1 | 0.022 | 1.598 | 1.071 | 2.384 |
| MIP1a | 0.994 | 0.999 | 0.830 | 1.203 |
| NGFb | 0.582 | 1.150 | 0.699 | 1.890 |
| PDGFBB | 0.053 | 1.210 | 0.998 | 1.467 |

| | | | | |
|---|---|---|---|---|
| PIGF1 | 0.124 | 1.074 | 0.981 | 1.177 |
| RANTES | 0.478 | 1.154 | 0.777 | 1.713 |
| SCF | 0.452 | 1.148 | 0.801 | 1.645 |
| SDF1a | 0.686 | 1.040 | 0.861 | 1.256 |
| TNFa | 0.974 | 0.996 | 0.759 | 1.305 |
| TNFb | 0.979 | 1.004 | 0.716 | 1.409 |
| VEGFA | 0.123 | 1.180 | 0.956 | 1.456 |
| VEGFD | 0.113 | 0.739 | 0.508 | 1.075 |

OR—Odss Ratio; CI—Confidence interval.

**Table S3.** Individual logistic regression model for each clinical characteristic adjusted by gender and age.

| Clinical characteristics | *P* value | OR | CI 95% | |
|---|---|---|---|---|
| | | | Low | High |
| **Blood Group** | | | | |
| O Blood Group | 0.061 | 0.746 | 0.549 | 1.013 |
| **Comorbidities** | | | | |
| Smoking | 0.622 | 1.428 | 0.347 | 5.880 |
| Coronary disease | 1.000 | 1.000 | 0.255 | 3.919 |
| Atrial fibrillation | 0.916 | 0.929 | 0.237 | 3.640 |
| Diabetes | 0.037 | 2.968 | 1.067 | 8.256 |
| Neurological disease | 0.773 | 1.512 | 0.091 | 25.173 |
| Stroke | 1.000 | 0.000 | 0.000 | |
| Hypertension | 0.769 | 1.131 | 0.496 | 2.583 |
| Liver disease | 0.999 | 0.000 | 0.000 | |
| Obesity | 0.023 | 5.363 | 1.254 | 22.936 |
| COPD | 0.785 | 1.242 | 0.261 | 5.909 |
| Kidney disease | 0.360 | 3.151 | 0.270 | 36.797 |
| **Laboratory values** | | | | |
| Glycaemia (mg/dL) | 0.000 | 1.030 | 1.017 | 1.043 |
| Creatine (mg/dL) | 0.122 | 1.633 | 0.877 | 3.041 |

| | | | | |
|---|---|---|---|---|
| Total bilirubin (mg/dL) | 0.250 | 1.449 | 0.770 | 2.725 |
| Leukocytes ($x10^9$/L) | 0.000 | 1.000 | 1.000 | 1.000 |
| Lymphocytes ($x10^9$/L) | 0.484 | 1.000 | 1.000 | 1.000 |
| Neutrophil ($x10^9$/L) | 0.000 | 1.000 | 1.000 | 1.001 |
| Procalcitonin (ng/ml) | 0.048 | 2.527 | 1.010 | 6.327 |
| Platelet ($x10^9$/L) | 0.932 | 1.000 | 1.000 | 1.000 |
| CRP (mg/L) | 0.091 | 1.004 | 0.999 | 1.008 |
| Ferritin (μg/L) | 0.002 | 1.001 | 1.000 | 1.001 |
| D-dimer (mg/L) | 0.050 | 1.000 | 1.000 | 1.000 |
| LDH (mmol/L) | 0.000 | 1.007 | 1.003 | 1.011 |

OR—Odss Ratio; CI—Confidence interval.

**Table S4.** Backward logistic regression.

| | Effect | *P* value | OR | CI 95% | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| **Intubation or death** | 0 blood-group | 0.019 | 0.073 | 0.008 | 0.654 |
| | Glycaemia > 134.5 mg/dL | 0.003 | 15.09 | 2.577 | 88.32 |
| | Procalcitonin > 0.07 ng/mL | 0.017 | 12.92 | 1.58 | 105.99 |
| | Ferritin > 934 μg/L | 0.039 | 6.91 | 1.1 | 43.5 |
| | D-dimer > 1814.5 mg/L | 0.041 | 13 | 1.11 | 152.04 |
| | HGF > 187.5 pg/ml | 0.025 | 7.38 | 1.28 | 42.4 |

CI—confidence interval; OR—Odds ratio.

**Table S5.** Bootstrap for Variables in the Equation.

| | **B** | **Bias** | **Std. Error** | ***p*** | **95% CI** | |
|---|---|---|---|---|---|---|
| | | | | | **Lower** | **Upper** |
| 0 blood-group | -2.624 | -10.322 | 22.637 | 0.031 | -86.377 | -0.265 |
| Glycaemia>134.5 mg/dL | 2.714 | 7.976 | 19.991 | 0.003 | 0.724 | 80.430 |
| Procalcitonin>0.07 ng/mL | 2.559 | 7.854 | 18.129 | 0.001 | 1.124 | 65.326 |
| Ferritin>934 μg/L | 1.933 | 3.788 | 12.909 | 0.013 | 0.496 | 52.612 |
| D-dimer>1814.5 mg/L | 2.566 | 10.785 | 21.444 | 0.008 | 0.109 | 79.985 |
| HGF>187.5 pg/ml | 1.998 | 6.852 | 16.286 | 0.003 | 0.536 | 61.567 |

CI—confidence Interval; B—beta coefficient.