

SUPPLEMENTARY MATERIAL

An in-depth investigation of serum Krebs von den Lungen-6 and other biomarkers in COVID-19 severity and mortality

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Supplementary Table 1. Other characteristics of COVID-19 patients based on the severity groups.

Parameters	All Patients (n = 78)	Severe (n = 39) (Severe: n = 18; Critical: n = 21)	Non-Severe (n = 39) (Mild: n = 12; Moderate: n = 27)	p-value
Complete blood count				
Haemoglobin, g/dL	13.49±2.36 13.50 (12.38, 15.03)	13.26±1.89 13.30 (12.00, 14.20)	13.72±2.75 13.80 (12.50, 15.30)	0.054 ^a
RBC, 10⁶/mL	4.79±0.77 4.71 (4.30, 5.22)	4.70±0.76 4.59 (4.23, 5.20)	4.87±0.78 4.76 (4.35, 5.26)	0.343 ^b
Hematocrit, %	39.67±5.03 39.65 (36.50, 43.25)	38.77±5.35 38.70 (34.50, 42.70)	40.57±4.59 41.20 (37.00, 44.30)	0.116 ^b
Platelet, 10³/mL	258.74±102.70 242.00 (188.00, 304.00)	290.28±123.38 277.00 (191.00, 381.00)	227.21±64.09 225.00 (185.00, 264.00)	0.006 ^b
WBC, 10³/mL	8.48 ± 3.92 7.68 (5.95, 10.07)	9.75 ± 3.91 9.26 (6.63, 10.98)	7.21 ± 3.55 6.49 (5.49, 8.37)	0.004 ^b
Neutrophil count, 10³/mL	6.57±3.57 5.36 (4.07, 7.76)	7.92±3.48 7.31 (5.14, 9.47)	5.23±3.17 4.51 (3.71, 6.44)	0.001 ^b
Lymphocyte count, 10³/mL	1.51±2.48 1.12 (0.77, 1.69)	1.65±3.47 0.95 (0.65, 1.60)	1.37±0.64 1.24 (0.87, 1.72)	0.056 ^a
Eosinophil count, 10³/mL	0.03±0.05 0.00 (0.00, 0.02)	0.03±0.06 0.00 (0.00, 0.01)	0.03±0.05 0.00 (0.00, 0.02)	0.331 ^a
Basophil count, 10³/mL	0.02±0.02 0.02 (0.01, 0.03)	0.02±0.02 0.02 (0.01, 0.03)	0.02±0.02 0.02 (0.01, 0.03)	0.996 ^a
Monocyte count, 10³/mL	0.55±0.38 0.48 (0.35, 0.65)	0.58±0.45 0.51 (0.35, 0.66)	0.53±0.31 0.47 (0.35, 0.65)	0.597 ^b
Liver function test				
SGOT, U/L	67.33±61.40 54.50 (34.00, 76.50)	80.95±76.27 63.00 (38.00, 88.00)	53.72±37.98 40.00 (33.00, 68.00)	0.044 ^a
SGPT, U/L	57.71±81.26 40.00 (26.00, 63.25)	56.23±40.13 44.00 (27.00, 72.00)	59.18±108.47 34.00 (23.00, 56.00)	0.092 ^a

Renal function test				
BUN, mg/dL	18.00±15.55 13.65 (10.75, 18.85)	21.59±16.85 15.70 (12.50, 23.80)	14.40±13.41 12.10 (10.40, 14.00)	0.001 ^a
Creatinine, mg/dL	1.25±1.62 1.00 (0.77, 1.19)	1.38±2.19 1.00 (0.66, 1.29)	1.12±0.70 1.00 (0.88, 1.11)	0.472 ^a
Electrolyte				
Sodium, mmol/L	135.09±5.64 136.00 (133.00, 138.00)	134.95±6.82 136.00 (132.00, 139.00)	135.23±4.22 136.00 (134.00, 138.00)	0.818 ^a
Potassium, mmol/L	3.93±0.56 3.85 (3.50, 4.30)	4.03±0.57 3.90 (3.70, 4.50)	3.83±0.54 3.80 (3.50, 4.20)	0.125 ^b
Chloride, mmol/L	103.35±4.97 104.00 (101.75, 106.00)	103.82±5.33 104.00 (102.00, 106.00)	102.87±4.61 104.00 (100.00, 106.00)	0.403 ^b

Continuous variables are shown as mean ± SD and median (interquartile range [IQR]).

The comparison between two groups, either severe vs non-severe and non-survivor vs survivor, was performed using Mann-Whitney U test (a) or independent T-test (b).

BUN, blood urea nitrogen; RBC, red blood cell; SGOT, serum glutamic oxaloacetic transaminase; SGPT, serum glutamic pyruvic transaminase; WBC, white blood cell.

Supplementary Table 2. Other characteristics of COVID-19 patients based on the mortality groups.

Parameters	All Patients (n = 78)	Non-Survivor (n = 25) (Non-Severe: n = 4; Severe: n = 21)	Survivor (n = 53) (Non-Severe: n = 35; Severe: n = 18)	p-value
Complete blood count				
Haemoglobin, g/dL	13.49±2.36 13.50 (12.38, 15.03)	13.83±2.25 13.40 (12.30, 15.65)	13.33±2.41 13.60 (12.35, 14.95)	0.835 ^a
RBC, 10⁶/mL	4.79±0.77 4.71 (4.30, 5.22)	4.96±0.72 5.08 (4.55, 5.47)	4.70±0.79 4.67 (4.28, 5.05)	0.172 ^b
Hematocrit, %	39.67±5.03 39.65 (36.50, 43.25)	40.42±5.81 39.70 (36.15, 44.15)	39.32±4.64 39.60 (36.40, 42.95)	0.369 ^b
Platelet, 10³/mL	258.74±102.70 242.00 (188.00, 304.00)	247.56±96.10 237.00 (184.00, 320.50)	264.02±106.14 242.00 (194.50, 286.00)	0.619 ^a
WBC, 10³/mL	8.48 ± 3.92 7.68 (5.95, 10.07)	10.43±5.47 10.07 (5.76, 12.43)	7.55±2.50 7.09 (5.95, 8.89)	0.025 ^a
Neutrophil count, 10³/mL	6.57±3.57 5.36 (4.07, 7.76)	8.68±4.77 8.44 (4.44, 10.78)	5.58±2.29 5.14 (3.97, 6.97)	0.004 ^a
Lymphocyte count, 10³/mL	1.51±2.48 1.12 (0.77, 1.69)	1.10±0.53 1.07 (0.67, 1.58)	1.70±2.98 1.16 (0.81, 1.75)	0.212 ^a
Eosinophil count, 10³/mL	0.03±0.05 0.00 (0.00, 0.02)	0.01±0.04 0.00 (0.00, 0.00)	0.03±0.06 0.00 (0.00, 0.04)	0.066 ^a
Basophil count, 10³/mL	0.02±0.02 0.02 (0.01, 0.03)	0.02±0.01 0.02 (0.01, 0.02)	0.02±0.02 0.02 (0.01, 0.03)	0.419 ^a
Monocyte count, 10³/mL	0.55±0.38 0.48 (0.35, 0.65)	0.62±0.57 0.47 (0.36, 0.64)	0.52±0.25 0.49 (0.35, 0.65)	0.279 ^b
Liver function test				
SGOT, U/L	67.33±61.40 54.50 (34.00, 76.50)	94.48±87.15 70.00 (43.50, 104.00)	54.53±39.45 40.00 (32.50, 68.00)	0.004 ^a
SGPT, U/L	57.71±81.26 40.00 (26.00, 63.25)	55.68±35.44 57.00 (26.50, 76.00)	58.66±95.89 38.00 (25.50, 56.50)	0.161 ^a
Renal function test				

BUN, mg/dL	18.00±15.55 13.65 (10.75, 18.85)	28.08±23.96 20.00 (13.05, 32.65)	13.24±4.61 12.50 (10.50, 14.90)	0.001 ^a
Creatinine, mg/dL	1.25±1.62 1.00 (0.77, 1.19)	1.81±2.77 1.05 (0.69, 1.89)	0.99±0.34 0.93 (0.80, 1.16)	0.327 ^a
Electrolyte				
Sodium, mmol/L	135.09±5.64 136.00 (133.00, 138.00)	135.80±4.31 136.00 (133.00, 139.50)	134.75±6.17 136.00 (132.50, 138.00)	0.537 ^a
Potassium, mmol/L	3.93±0.56 3.85 (3.50, 4.30)	4.32±0.58 4.30 (3.90, 4.75)	3.75±0.45 3.70 (3.50, 3.95)	0.000 ^b
Chloride, mmol/L	103.35±4.97 104.00 (101.75, 106.00)	104.44±2.86 104.00 (102.00, 106.00)	102.83±5.66 104.00 (101.00, 106.00)	0.235 ^a

Continuous variables are shown as mean ± SD and median (interquartile range [IQR]).

The comparison between two groups, either severe vs non-severe and non-survivor vs survivor, was performed using Mann-Whitney U test (a) or independent T-test (b).

BUN, blood urea nitrogen; RBC, red blood cell; SGOT, serum glutamic oxaloacetic transaminase; SGPT, serum glutamic pyruvic transaminase; WBC, white blood cell.

Supplementary Table 3. Details of missing data and multiple imputation status.

Variable	Missing, n(%)	Multiple Imputation Status
D-dimer	1 (1.28)	Imputed
Ferritin	30 (38.46)	Not imputed
Interleukin-6	19 (24.36)	Not imputed
Procalcitonin	2 (2.56)	Imputed
C-reactive Protein	3 (3.85)	Imputed