



Table S1. Standard laboratory parameters and inflammatory markers in hemodialysis (HD) and transplant (KTR) patients.

Parameter	HD	KTR	<i>p</i> -Value
NT-pro-BNP (ng/L)	27866.1 ± 28524.5 14975, 3120–70000	447.4 ± 937.1 315, 133–475	< 0.001
BNP (ng/L)	1716.7 ± 3006.5 316, 112–2573	78.2 ± 118.6 61, 29–98	< 0.001
Albumin (g/dL)	3.60 ± 0.63 3.8, 3.3–4.0	4.52 ± 1.59 4.3, 4.1–4.6	< 0.001
CRP (mg/L)	17.17 ± 32.90 4.4, 2.6–13.7	2.91 ± 5.02 1.3, 0.6–3.2	< 0.001
Platelets (10 ³ /μL)	178.2 ± 60.4 184, 127–217	225.7 ± 55.4 229, 189–267	0.001
Leucocytes (10 ³ /μL)	7.15 ± 1.60 7.2, 5.8–8.2	8.20 ± 1.98 8.1, 6.6–9.7	0.025
Neutrophils (10 ³ /μL)	5.95 ± 6.25 4.7, 3.8–5.6	4.45 ± 1.44 4.4, 3.7–5.4	0.510
Lymphocytes (10 ³ /μL)	1.35 ± 0.52 1.4, 1.0–1.5	2.62 ± 0.76 2.7, 2.0–3.1	< 0.001
Monocytes (10 ³ /μL)	0.62 ± 0.20 0.7, 0.5–0.7	0.79 ± 0.21 0.8, 0.7–1.0	0.002
NLR	4.67 ± 3.53 3.9, 2.2–5.9	1.85 ± 0.65 1.7, 1.3–2.2	< 0.001
dNLR	1.092 ± 1.451 0.84, 0.79–0.87	0.815 ± 0.052 0.82, 0.79–0.84	0.267
PLR	149.1 ± 71.7 128, 102–186	91.7 ± 30.3 88, 73–104	< 0.001
MLR	0.505 ± 0.201 0.49, 0.38–0.61	0.322 ± 0.123 0.31, 0.25–0.39	< 0.001

Descriptive statistics: mean ± SD, median, IQR

Table S2. Standard laboratory parameters and inflammatory markers in hemodialysis (HD) and transplant (KTR) patients in relation to SARS-CoV-2 exposure.

Parameter	HD			KTR		
	Convalescent	Reference	<i>p</i>	Convalescent	Reference	<i>p</i>
NT-pro-BNP (ng/L)	38885.3 ± 31451.6	16847 ± 21267.8	0.104	589.2 ± 1358.2	325.1 ± 218.1	0.917
	40662, 7865–70000	11671, 1603–24264		305, 136–550	325, 133–455	
BNP (ng/L)	2740.6 ± 3885.1	599.6 ± 807.7	0.310	96.4 ± 169.6	62.5 ± 37.7	0.931
	738, 180–3906	258, 64–730		51, 29–100	69, 23–98	
Albumin (g/dL)	3.33 ± 0.7	3.87 ± 0.42	0.013	4.32 ± 0.31	4.69 ± 2.16	0.937
	3.4, 3.1–3.9	4.0, 3.7–4.2		4.3, 4.2–4.6	4.4, 4.1–4.6	
CRP (mg/L)	28.71 ± 42.99	4.67 ± 4.13	0.041	3.25 ± 6.48	2.61 ± 3.4	0.477
	6.5, 3.6–17.7	3.3, 1.9–4.6		1.2, 0.5–2.0	2.0, 0.6–3.2	
Platelets (10 ³ /μL)	195.6 ± 69.2	159.3 ± 44.7	0.242	231.5 ± 60.3	220.8 ± 51.4	0.390
	193, 127–222	143, 131–194		231, 189–269	217, 190–239	
Leucocytes (10 ³ /μL)	7.27 ± 1.83	7.01 ± 1.37	0.807	8.12 ± 2.09	8.27 ± 1.91	0.924
	6.9, 5.8–8.5	7.3, 6.0–8.0		8.1, 6.7–9.5	8.1, 6.6–9.9	
Neutrophils (10 ³ /μL)	4.82 ± 1.93	7.18 ± 8.84	0.786	4.45 ± 1.43	4.7 ± 1.46	0.869
	4.2, 3.6–6.4	4.9, 3.9–5.6		4.4, 3.2–5.2	4.2, 3.8–5.6	
Lymphocytes (10 ³ /μL)	1.191 ± 0.484	1.513 ± 0.522	0.109	2.687 ± 0.817	2.568 ± 0.721	0.538
	1.12, 0.93–1.42	1.48, 1.21–1.67		2.66, 2.53–3.09	2.47, 1.95–3.07	
Monocytes (10 ³ /μL)	0.652 ± 0.196	0.592 ± 0.215	0.355	0.788 ± 0.259	0.784 ± 0.162	0.493
	0.69, 0.56–0.74	0.58, 0.44–0.72		0.83, 0.70–0.97	0.76, 0.66–0.88	
NLR	4.528 ± 2.053	4.823 ± 4.756	0.463	1.749 ± 0.607	1.933 ± 0.684	0.286
	4.16, 2.22–5.89	2.94, 2.33–5.83		1.69, 1.25–2.10	1.89, 1.38–2.31	
dNLR	0.782 ± 0.151	1.429 ± 2.080	0.313	0.814 ± 0.06	0.816 ± 0.046	0.577
	0.82, 0.79–0.86	0.86, 0.80–0.90		0.81, 0.79–0.84	0.82, 0.80–0.84	
PLR	181 ± 75.2	114.5 ± 50.3	0.010	92.4 ± 31.5	91.1 ± 29.8	0.748
	156, 128–208	104, 89–126		88, 73–108	85, 73–100	
MLR	0.592 ± 0.206	0.412 ± 0.154	0.012	0.32 ± 0.154	0.323 ± 0.092	0.526
	0.50, 0.49–0.63	0.39, 0.28–0.52		0.28, 0.26–0.35	0.32, 0.25–0.39	

Descriptive statistics: mean ± SD, median, IQR

Table S3. Phenotypes of peripheral blood T lymphocytes in hemodialysis (HD) and transplant (KTR) patients.

Cell population	HD	KTR	<i>p</i>
T cells/ μ L	1071.3 \pm 640.7 1003, 726–1116	2112.0 \pm 697.3 2213, 1565–2643	< 0.001
T %lymphocytes	77.17 \pm 8.05 79.2, 69.2–82.6	79.63 \pm 7.81 80.3, 76.0–86.0	0.178
CD4+ T cells / μ L	627.8 \pm 292.9 586, 461–771	1263.9 \pm 528.5 1186, 811–1725	< 0.001
CD8+ T cells / μ L	375.4 \pm 302.3 272, 172–420	738.6 \pm 328.3 721, 499–908	< 0.001
CD4+CD8+ T cells / μ L	16.10 \pm 14.99 9.6, 7.2–18.4	47.51 \pm 125.10 20.4, 9.3–38.1	0.018
CD4+ / CD8+	2.32 \pm 1.64 1.9, 1.3–2.8	2.11 \pm 1.56 1.8, 1.2–2.4	0.651
CD4+ %T	60.76 \pm 13.76 60.1, 55.2–70.8	59.16 \pm 12.24 60.5, 51.6–67.6	0.702
CD8+ %T	34.00 \pm 12.98 33.9, 24.8–40.4	35.64 \pm 12.49 34.0, 28.0–43.3	0.664
CD4+CD8+ %T	1.554 \pm 1.355 1.06, 0.77–1.72	2.010 \pm 4.604 0.91, 0.47–1.98	0.233
Regulatory T cells/ μ L	15.65 \pm 10.23 13.8, 8.7–20.3	17.78 \pm 10.30 15.7, 10.1–23.7	0.285
Th1 cells/ μ L	113.3 \pm 65.5 108, 69–135	161.8 \pm 108.0 141, 97–196	0.057
Th2 cells/ μ L	3.76 \pm 2.74 3.5, 1.6–4.8	2.48 \pm 1.48 2.2, 1.3–3.3	0.034
Th17 cells/ μ L	6.33 \pm 4.88 4.1, 2.9–10.9	5.84 \pm 3.04 5.3, 3.6–7.6	0.677
Regulatory T %CD4+ T	2.476 \pm 0.828 2.39, 1.75–3.05	1.469 \pm 0.714 1.46, 0.91–1.87	<0.001
Th1 % CD4+ T	18.92 \pm 7.80 18.3, 12.6–22.3	13.66 \pm 8.09 11.7, 8.1–17.9	<0.003
Th2 % CD4+ T	0.612 \pm 0.400 0.47, 0.41–0.72	0.211 \pm 0.124 0.18, 0.13–0.25	<0.001
Th17 % CD4+ T	1.016 \pm 0.578 0.89, 0.56–1.34	0.506 \pm 0.298 0.43, 0.28–0.60	<0.001

Descriptive statistics: mean \pm SD, median, IQR

Table S4. Phenotypes of peripheral blood B lymphocytes and NK cells in hemodialysis (HD) and transplant (KTR) patients.

Cell Population	HD	KTR	<i>p</i>
B cells/ μ L	120.4 \pm 92.7 98, 62–147	200.0 \pm 172.6 131, 95–287	0.021
B %lymphocytes	9.12 \pm 5.66 9.5, 4.4–11.9	7.35 \pm 4.82 6, 3.6–9	0.150
Plasmablasts cells/ μ L	2.275 \pm 2.795 0.97, 0.61–2.79	0.809 \pm 1.172 0.36, 0.12–1.19	< 0.001
IgD- memory B cells/ μ L	16.34 \pm 13.14 10.4, 8.3–23.4	48.85 \pm 71.87 27.6, 15.1–51.5	< 0.001
IgD+ memory B cells/ μ L	13.14 \pm 30.91 4.5, 3.0–8.5	30.69 \pm 34.30 17.2, 9.0–45.6	< 0.001
Naïve B cells/ μ L	80.5 \pm 69.4 65, 29–114	110.5 \pm 104.7 72, 49–142	0.242
Transitional B cells/ μ L	3.489 \pm 4.743 1.63, 0.49–4.31	1.489 \pm 1.710 0.76, 0.33–2.14	0.122
Plasmablasts %B	3.663 \pm 5.429 1.35, 0.56–2.93	0.594 \pm 0.845 0.23, 0.08–0.81	<0.001
IgD- memory B %B	16.43 \pm 10.16 15.1, 8.7–23.2	23.37 \pm 15.03 19.4, 12.7–31.1	0.042
IgD+ memory B %B	9.46 \pm 9.00 5.8, 2.9–15.5	15.2 \pm 10.29 12.5, 6.5–23.2	0.004
Naïve B %B	62.21 \pm 19.94 67.9, 48.1–78.1	56.04 \pm 21.07 56.2, 39.1–73.4	0.242
Transitional B %B	2.825 \pm 3.796 1.53, 0.60–3.71	0.914 \pm 1.116 0.65, 0.24–0.98	0.002
NK cells/ μ L	156.1 \pm 84.3 147, 103–175	321.5 \pm 224.9 256, 148–448	< 0.001
NK %lymphocytes	13.14 \pm 7.89 10.5, 8.0–16.7	12.5 \pm 8.12 10.4, 7.0–17.4	0.592
NKT cells/ μ L	70.0 \pm 87.9 42, 23–84	176.8 \pm 177.9 121, 65–202	< 0.001
NKT %lymphocytes	5.016 \pm 3.814 3.38, 2.66–7.14	6.381 \pm 5.483 4.39, 2.31–7.38	0.484

Descriptive statistics: mean \pm SD, median, IQR

Table S5. Phenotypes of peripheral blood T lymphocytes in hemodialysis (HD) and transplant (KTR) patients in relation to SARS-CoV-2 exposure.

Cell Population	HD			KTR		
	Convalescent	Unexposed	<i>p</i>	Convalescent	Unexposed	<i>p</i>
T cells/ μ L	878.4 \pm 412.2 884, 538–1064	1296.5 \pm 793.5 1069, 928–1329	0.076	2190.6 \pm 684 2283, 1721–2635	2044.3 \pm 713.5 1696, 1438–2643	0.476
T %lymphocytes	77.26 \pm 7.11 79.2, 74.1–82.6	77.07 \pm 9.36 79.0, 69.1–83.2	0.979	80.71 \pm 7.67 80.8, 77.9–86.9	78.7 \pm 7.94 77.7, 73.7–85.4	0.176
CD4+ T cells / μ L	529.0 \pm 247.5 583, 342–617	743.1 \pm 309.3 764, 539–884	0.105	1308.5 \pm 569.8 1343, 803–1711	1225.5 \pm 497.1 1050, 824–1725	0.822
CD4+ %T	60.92 \pm 15.02 60.1, 55.2–75.7	60.57 \pm 12.78 60.7, 54.1–70	0.898	58.75 \pm 13.16 59.0, 45.9–68.4	59.51 \pm 11.61 61.3, 56.4–67.3	0.788
CD8+ T cells / μ L	314.1 \pm 236.4 179, 164–400	446.9 \pm 362.4 365, 254–458	0.129	758.1 \pm 351.6 722, 590–931	721.7 \pm 312.1 720, 497–899	0.579
CD8+ %T	34.82 \pm 14.7 35.1, 21.7–42.4	33.03 \pm 11.2 33.9, 25.7–40.0	0.898	35.58 \pm 14.17 32.7, 27.4–49.7	35.69 \pm 11.11 34.3, 29.5–38.4	0.896
CD4+CD8+ T cells / μ L	8.26 \pm 4.24 7.4, 6.5–9.6	25.24 \pm 17.84 19.2, 9.9–35.8	<0.001	69.26 \pm 180.52 21.5, 10.2–40.6	28.76 \pm 30.1 20.1, 8.8–33.7	0.567
CD4+CD8+ %T	0.99 \pm 0.40 0.9, 0.7–1.1	2.22 \pm 1.76 1.6, 1.0–2.7	0.022	2.77 \pm 6.63 0.9, 0.5–1.7	1.35 \pm 1.2 0.9, 0.5–2.0	0.671
CD4+ / CD8+	2.35 \pm 1.68 1.8, 1.3–3.5	2.28 \pm 1.66 1.9, 1.3–2.7	0.979	2.33 \pm 2.06 1.8, 0.9–2.5	1.92 \pm 0.93 1.8, 1.5–2.3	0.979
CD4+ CD28- CD57- T cells / μ L	12.44 \pm 15.74 7.8, 1.2–16.6	5.47 \pm 4.86 3.7, 2–8.4	0.527	12.04 \pm 16.57 4.3, 0.5–17.7	12.48 \pm 28.04 3.5, 0.8–10.9	0.767
CD4+ CD28- CD57- %T	3.56 \pm 6.43 1.6, 0.2–3.3	0.93 \pm 1.08 0.5, 0.3–1.1	0.231	0.96 \pm 1.39 0.4, 0.1–1.2	1.1 \pm 2.22 0.3, 0.1–1	0.905
CD8+ CD28- CD57- T cells / μ L	19.13 \pm 20.7 15.4, 3.5–28.4	36.13 \pm 33.75 33.3, 5–58.9	0.176	62.65 \pm 108.59 25.5, 4.8–79.2	45.28 \pm 66.88 21.1, 2.4–48.7	0.618
CD8+ CD28- CD57- %T	5.02 \pm 5.27 3.9, 0.6–6.5	4.83 \pm 3.77 5.4, 0.9–7.6	0.781	4.92 \pm 6.95 2.1, 0.4–6.5	4.24 \pm 6.86 1.4, 0.3–6.6	0.606
CD4+ CD28- CD57+ T cells / μ L	34.25 \pm 35.02 23.3, 12.8–51.2	70.43 \pm 84.17 32.1, 13.2–105.8	0.347	156.67 \pm 164.68 95.0, 33.8–223.8	106.53 \pm 113.14 76.5, 31.8–137.1	0.309
CD4+ CD28- CD57+ %T	11.26 \pm 7.97 8.4, 4.9–14.7	14.79 \pm 11.61 11.6, 7.7–20.7	0.560	22.66 \pm 35.31 15.2, 5.5–22.6	12.84 \pm 8.39 10.7, 6.6–16.6	0.247
CD8+ CD28- CD57+ T cells / μ L	138.41 \pm 161.63 61.9, 39.9–128	135.17 \pm 177.43 60.6, 26.1–160.7	0.781	239.26 \pm 166.57 196.9, 107.8–372.9	236.68 \pm 176.45 169.0, 115.3–369.7	0.877
CD8+ CD28- CD57+ %T	37.15 \pm 21.71 33.6, 15.1–56.8	25.65 \pm 17.97 22.7, 15.4–36.6	0.231	33.33 \pm 25.95 28.7, 19.1–37.8	30.13 \pm 12.86 29.8, 20.4–38.8	0.918
Regulatory T cells/ μ L	12.75 \pm 6.45 13.8, 7.6–16.7	19.03 \pm 12.86 15.4, 9.6–24.2	0.227	19.42 \pm 12.18 15.0, 11.7–25.8	16.36 \pm 8.32 16.3, 9.8–19.9	0.488
Regulatory T %CD4+ T	2.452 \pm 0.688 2.39, 1.97–2.86	2.504 \pm 0.999 2.30, 1.63–3.55	0.898	1.568 \pm 0.833 1.49, 0.91–1.85	1.383 \pm 0.595 1.34, 0.91–1.87	0.566
Th1 cells/ μ L	90.5 \pm 45.6 76, 57–122	140 \pm 76.6 126, 98–166	0.076	171 \pm 114.8 142, 99–204	154.0 \pm 103.1 140, 97–176	0.715
Th1 % CD4+ T	18.92 \pm 9.14 17.5, 12.4–30.3	18.91 \pm 6.28 18.3, 14.6–21.5	0.857	14.07 \pm 7.61 14.3, 7.6–17.9	13.3 \pm 8.59 11.0, 8.3–15.5	0.633
Th2 cells/ μ L	3.79 \pm 3.27 3.5, 1.4–4.8	3.72 \pm 2.10 3.6, 2.2–4.8	0.797	2.57 \pm 1.49 2.2, 1.7–3.1	2.4 \pm 1.5 2.1, 1.2–3.3	0.555
Th2 % CD4+ T	0.72 \pm 0.509 0.58, 0.4–0.97	0.486 \pm 0.158 0.47, 0.43–0.6	0.471	0.216 \pm 0.113 0.19, 0.14–0.26	0.207 \pm 0.135 0.17, 0.12–0.24	0.573
Th17 cells/ μ L	4.67 \pm 3.35 3.8, 2.8–5.2	8.27 \pm 5.76 5.4, 3.6–12.8	0.080	5.49 \pm 2.52 5.3, 3.5–7.2	6.14 \pm 3.44 5.4, 3.8–8.3	0.450
Th17 % CD4+ T	0.922 \pm 0.526 0.82, 0.56–1.18	1.126 \pm 0.639 1.26, 0.53–1.55	0.456	0.488 \pm 0.307 0.41, 0.28–0.59	0.522 \pm 0.295 0.49, 0.36–0.60	0.646

Descriptive statistics: mean \pm SD, median, IQR

Table S6. Phenotypes of peripheral blood B lymphocytes and NK cells in hemodialysis (HD) and transplant (KTR) patients in relation to SARS-CoV-2 exposure.

Cell Population	HD			KTR		
	Convalescent	Unexposed	<i>p</i>	Convalescent	Unexposed	<i>p</i>
B cells/ μ L	103.2 \pm 94.8	140.4 \pm 89.9	0.172	215.0 \pm 191.6	187.0 \pm 156.6	0.499
	85, 62–108	135, 68–203		166, 101–286	124, 86–287	
B %lymphocytes	8.89 \pm 5.63	9.39 \pm 5.93	0.487	7.41 \pm 4.13	7.30 \pm 5.41	0.445
	7.7, 5.6–10.4	11.2, 3.6–12.5		7.3, 3.8–9.0	5.0, 3.6–9.0	
Plasmablasts cells/ μ L	2.804 \pm 3.336	1.658 \pm 1.956	0.396	0.882 \pm 1.243	0.746 \pm 1.126	0.526
	1.34, 0.73–3.78	0.92, 0.52–1.62		0.42, 0.14–0.81	0.22, 0.12–1.19	
Plasmablasts %B	4.32 \pm 4.84	2.9 \pm 6.17	0.247	0.61 \pm 0.82	0.58 \pm 0.88	0.952
	1.6, 0.6–9.4	1.0, 0.4–2.2		0.3, 0.1–0.8	0.2, 0.1–0.7	
IgD- memory B cells/ μ L	11.9 \pm 8.25	21.5 \pm 16.05	0.105	56.74 \pm 91.82	42.05 \pm 49.46	0.567
	8.9, 7.2–16.8	15.1, 8.9–33.3		30.5, 15.1–57.0	25.8, 16.3–42.3	
IgD- memory B %B	14.18 \pm 8.31	19.06 \pm 11.79	0.292	22.76 \pm 12.39	23.88 \pm 17.20	0.822
	10.8, 7.9–18.3	15.9, 11.0–25.0		18.9, 14.4–30.2	19.8, 10.6–31.5	
IgD+ memory B cells/ μ L	16.69 \pm 41.17	9.00 \pm 11.56	0.857	33.88 \pm 37.06	27.94 \pm 32.15	0.652
	4.6, 2.5–8.5	4.3, 3.1–8.1		19.8, 7.4–58.9	15.0, 9.5–33.7	
IgD+ memory B %B	10.64 \pm 10.69	8.09 \pm 6.71	0.425	15.51 \pm 10.35	14.94 \pm 10.42	0.979
	5.8, 4.1–15.5	4.9, 2.3–14.5		13.6, 6.1–24.5	10.6, 7.5–20.5	
Naïve B cells/ μ L	62.76 \pm 52.19	101.3 \pm 82.82	0.172	113.12 \pm 97.42	108.29 \pm 112.26	0.415
	53, 28.6–76	96.2, 31.9–138		79.1, 50.6–152.0	65.8, 44.1–87.8	
Naïve B %B	61.39 \pm 18.73	63.18 \pm 22.07	0.857	55.97 \pm 21.23	56.11 \pm 21.31	0.890
	59.8, 49.2–80.7	69.1, 47.0–76.9		56.0, 41.0–70.1	56.4, 39.1–74.2	
Transitional B cells/ μ L	2.923 \pm 4.451	4.143 \pm 5.181	0.738	1.754 \pm 1.658	1.261 \pm 1.749	0.176
	1.63, 0.49–2.76	2.13, 0.45–6.47		1.10, 0.44–2.79	0.55, 0.32–1.23	
Transitional B %B	3.112 \pm 4.497	2.489 \pm 2.935	0.520	1.104 \pm 1.317	0.750 \pm 0.902	0.274
	1.70, 1.20–3.32	1.03, 0.58–4.21		0.70, 0.58–1.01	0.43, 0.24–0.87	
NK cells/ μ L	133.5 \pm 63.2	182.4 \pm 100.2	0.269	310.9 \pm 265.9	330.7 \pm 187.0	0.367
	142, 82–162	165, 114–185		204, 108–434	313, 169–448	
NK %lymphocytes	13.23 \pm 7.05	13.03 \pm 9.1	0.777	11.41 \pm 8.25	13.44 \pm 8.04	0.362
	12.4, 8.0–16.7	9.9, 8.0–15.1		10.4, 3.2–15.2	10.5, 7.1–18.5	
NKT cells/ μ L	50.8 \pm 35.5	92.4 \pm 122.7	0.589	158.4 \pm 162.9	192.7 \pm 191.2	0.521
	36, 23–78	49, 23–109		117, 58–185	124, 69–202	
NKT %lymphocytes	5.06 \pm 3.74	4.97 \pm 4.06	0.817	5.69 \pm 5.46	6.98 \pm 5.53	0.252
	3.2, 2.7–7.0	3.4, 2.0–7.9		4.0, 2.1–7.3	5.4, 2.6–7.4	

Descriptive statistics: mean \pm SD, median, IQR