

Table 1. Summary of patients' characteristics and laboratory measurements with regard to hemodialysis access failure.

	Total (n=212)	Hemodialysis access failure		p
		No (n=186)	Yes (n=26)	
Age	64.70 ± 14.15	64.19 ± 14.61	68.35 ± 9.66	0.063
Sex				
Female	80 (37.7%)	69 (37.1%)	11 (42.3%)	0.766
Male	132 (62.3%)	117 (62.9%)	15 (57.7%)	
Comorbidities				
Hypertension	134 (63.2%)	121 (65.1%)	13 (50.0%)	0.203
Diabetes mellitus	113 (53.3%)	93 (50.0%)	20 (76.9%)	0.018
Hyperlipidemia	52 (24.5%)	48 (25.8%)	4 (15.4%)	0.361
Cerebrovascular accident history	12 (5.7%)	10 (5.4%)	2 (7.7%)	0.646
Malignancy	6 (2.8%)	5 (2.7%)	1 (3.8%)	0.548
Coronary artery disease	39 (18.4%)	35 (18.8%)	4 (15.4%)	0.793
Congestive heart failure	29 (13.7%)	26 (14.0%)	3 (11.5%)	1.000
Chronic obstructive pulmonary disease	10 (4.7%)	7 (3.8%)	3 (11.5%)	0.110
Anticoagulant use				
Aspirin	138 (65.1%)	119 (64.0%)	19 (73.1%)	0.489
Clopidogrel	23 (10.8%)	18 (9.7%)	5 (19.2%)	0.172
Coumadin	8 (3.8%)	8 (4.3%)	0 (0.0%)	0.600
Low molecular weight heparin	22 (10.4%)	18 (9.7%)	4 (15.4%)	0.323
Anticoagulant use during hemodialysis				
None	11 (5.2%)	11 (5.9%)	0 (0.0%)	0.220
Heparin	170 (80.2%)	150 (80.6%)	20 (76.9%)	
Low molecular weight heparin	31 (14.6%)	25 (13.4%)	6 (23.1%)	
Duration of hemodialysis, months	34 (14.5 - 76)	36.5 (16 - 80)	18.5 (10 - 46)	0.026
Type of access				
Arteriovenous fistula	141 (66.5%)	133 (71.5%)	8 (30.8%)	< 0.001
Catheter	71 (33.5%)	53 (28.5%)	18 (69.2%)	
Duration of access, months	25.5 (13 - 49)	27 (13 - 49)	17.5 (10 - 37)	0.083
Hypotension during hemodialysis	131 (61.8%)	108 (58.1%)	23 (88.5%)	0.006
COVID-19 PCR test result				
Negative	165 (77.8%)	158 (84.9%)	7 (26.9%)	< 0.001
Positive	47 (22.2%)	28 (15.1%)	19 (73.1%)	
Favipiravir use ⁽¹⁾	31 (66.0%)	21 (75.0%)	10 (52.6%)	0.202
Chloroquine use ⁽¹⁾	44 (93.6%)	25 (89.3%)	19 (100.0%)	0.262
WBC (x10 ³)	5.32 (3.80 - 7.20)	5.59 (3.86 - 7.30)	3.90 (3.48 - 5.32)	0.004
WBC (x10 ³) during COVID-19 disease ⁽¹⁾	8.60 (6.41 - 11.40)	6.80 (5.40 - 8.75)	11.40 (9.30 - 14.10)	< 0.001
WBC (x10 ³) after COVID-19 disease ⁽¹⁾	5.07 (3.61 - 7.12)	4.61 (3.50 - 6.30)	7.10 (4.20 - 8.39)	0.059
Neutrophil (%)	62.89 ± 12.92	63.19 ± 12.54	60.72 ± 15.52	0.363
Neutrophil (%) during COVID-19 disease ⁽¹⁾	62.64 ± 15.79	62.22 ± 16.05	63.24 ± 15.83	0.832
Neutrophil (%) after COVID-19 disease ⁽¹⁾	62.26 ± 11.57	61.37 ± 13.44	63.53 ± 8.41	0.539
Neutrophil (x10 ³)	3.07 (2.29 - 4.60)	3.30 (2.37 - 4.88)	2.56 (2.19 - 2.97)	0.002
Neutrophil (x10 ³) during COVID-19 disease ⁽¹⁾	5.52 (3.51 - 7.50)	3.96 (2.86 - 5.77)	7.20 (5.78 - 9.27)	0.001
Neutrophil (x10 ³) after COVID-19 disease ⁽¹⁾	2.95 (2.03 - 4.71)	2.47 (1.93 - 4.11)	3.86 (2.40 - 5.56)	0.054
Lymphocyte (%)	21.50 (15.60 - 28.50)	22.05 (16.20 - 28.80)	18.75 (11.30 - 25.00)	0.017
Lymphocyte (%) during COVID-19 disease ⁽¹⁾	18.75 (14.00 - 23.90)	15.00 (12.00 - 20.00)	22.20 (19.30 - 27.30)	< 0.001
Lymphocyte (%) after COVID-19 disease ⁽¹⁾	19.45 (14.10 - 22.70)	19.00 (10.90 - 22.70)	19.60 (14.40 - 23.90)	0.354
Lymphocyte (x10 ³)	1.10 (0.74 - 1.55)	1.17 (0.80 - 1.61)	0.74 (0.44 - 1.01)	< 0.001

Lymphocyte (x10 ³) during COVID-19 disease ⁽¹⁾	1.63 (0.88 - 2.76)	1.12 (0.74 - 1.48)	2.76 (2.06 - 3.14)	<0.001
Lymphocyte (x10 ³) after COVID-19 disease ⁽¹⁾	0.95 (0.60 - 1.34)	0.77 (0.50 - 1.19)	1.33 (0.83 - 1.48)	0.016
CRP	6.47 (1.98 - 16.50)	6.00 (2.04 - 16.43)	7.12 (1.57 - 18.38)	0.752
CRP during COVID-19 disease ⁽¹⁾	16.50 (8.00 - 41.00)	16.00 (6.60 - 26.37)	20.00 (12.30 - 47.20)	0.062
CRP after COVID-19 disease ⁽¹⁾	9.95 (4.70 - 17.92)	10.00 (3.08 - 20.00)	8.00 (4.70 - 17.92)	1.000
Hemoglobin	10.88 ± 1.64	10.85 ± 1.59	11.09 ± 2.03	0.475
Hemoglobin during COVID-19 disease ⁽¹⁾	10.71 ± 1.80	10.54 ± 1.56	10.94 ± 2.12	0.467
Hemoglobin after COVID-19 disease ⁽¹⁾	10.58 ± 1.87	10.52 ± 1.83	10.67 ± 1.99	0.798
Hematocrit	34.15 ± 4.99	33.98 ± 4.74	35.29 ± 6.52	0.333
Hematocrit during COVID-19 disease ⁽¹⁾	33.85 ± 5.94	33.30 ± 5.12	34.65 ± 7.05	0.453
Hematocrit after COVID-19 disease ⁽¹⁾	33.51 ± 6.39	33.07 ± 5.94	34.17 ± 7.13	0.566
Platelet (x10 ³)	194 (158 - 240)	194 (156 - 233)	203 (173 - 269)	0.175
Platelet (x10 ³) during COVID-19 disease ⁽¹⁾	189 (151 - 253)	198.5 (165 - 245)	163 (137 - 257)	0.495
Platelet (x10 ³) after COVID-19 disease ⁽¹⁾	198 (161 - 231)	197 (161 - 243.5)	198 (166 - 225)	0.657
Hospitalization	74 (34.9%)	58 (31.2%)	16 (61.5%)	0.005
Access related	11 (5.2%)	8 (4.3%)	3 (11.5%)	
COVID-19	27 (12.7%)	20 (10.8%)	7 (26.9%)	
Infection	11 (5.2%)	7 (3.8%)	4 (15.4%)	
Cardiac problems	12 (5.7%)	11 (5.9%)	1 (3.8%)	
Other	13 (6.1%)	12 (6.5%)	1 (3.8%)	
Length of stay in hospital, days ⁽²⁾	11 (7 - 17)	10 (7 - 18)	13.5 (6.5 - 16.5)	0.803
Intensive care unit need	28 (13.2%)	24 (12.9%)	4 (15.4%)	0.757
COVID-19	11 (5.2%)	10 (5.4%)	1 (3.8%)	
Infection	4 (1.9%)	2 (1.1%)	2 (7.7%)	
Cardiac problems	10 (4.7%)	9 (4.8%)	1 (3.8%)	
Other	3 (1.4%)	3 (1.6%)	0 (0.0%)	
Length of stay in intensive care unit, days ⁽³⁾	7 (3 - 10.5)	7 (3 - 10)	9 (2.5 - 16)	0.741
Treatment for access failure	35 (16.5%)	16 (8.6%)	19 (73.1%)	<0.001
Heparin	4 (1.9%)	1 (0.5%)	3 (11.5%)	
Low molecular weight heparin	2 (0.9%)	1 (0.5%)	1 (3.8%)	
Catheter revision	0 (0.0%)	0 (0.0%)	0 (0.0%)	
New catheter	15 (7.1%)	6 (3.2%)	9 (34.6%)	
Fistula revision	10 (4.7%)	7 (3.8%)	3 (11.5%)	
New fistula	4 (1.9%)	1 (0.5%)	3 (11.5%)	
Mortality	28 (13.2%)	22 (11.8%)	6 (23.1%)	0.124
COVID-19	7 (3.3%)	7 (3.8%)	0 (0.0%)	
Myocardial infarction	14 (6.6%)	12 (6.5%)	2 (7.7%)	
Other	7 (3.3%)	3 (1.6%)	4 (15.4%)	

Data are given as mean ± standard deviation or median (1st quartile - 3rd quartile) for continuous variables according to normality of distribution and as frequency (percentage) for categorical variables. CVA: Cerebrovascular accident, COPD: Chronic obstructive pulmonary disease, LMWH: Low molecular weight heparin. (1) Only COVID-19 positive cases were included into the assessment. (2) Only patients who stay in hospital were included into the assessment. (3) Only patients who stay in intensive care unit were included into the assessment.