ERACODA

- The ERA-EDTA COVID-19 Database for Patients on Kidney Replacement Therapy -

April 22, 2020

Third ERACODA Study Report

Dear Colleagues and Friends,

We welcome you to read the third study report of the ERACODA registry.

Key summary data

- 247 individuals have registered as user, representing 170 centres and 35 European countries and 12 other countries attached to the ERA-EDTA.
- 281 patient records have been entered at this moment. An analysis of the first 248 records shows that approximately 46% concern kidney transplant and 54% dialysis patients. Average age of all included patients is 63 years, 64% being male, with an average BMI of 26.2.
- 22% of the patients remained home after an initial diagnosis of COVID-19, whereas 78% was admitted to hospital (of which 6% admitted on a second presentation). Of the admitted patients, this was in 11% of cases in an ICU. At this moment 49 deaths have been reported.

Preliminary findings

300 patients are not sufficient, but a pattern seems to emerge. In general **symptomatology of COVID-19** in KRT patients seems mild, and not helpful to distinguish who will have a worse prognosis. Dialysis patients with COVID-19 are on average 8 years older and more frail than kidney transplant patients with this disease. **Mortality** in these infected patients receiving kidney replacement therapy is high, especially in case of a high frailty score. Most dialysis patients with an ICU indication are not admitted to ICU, but are **triaged**. This should not happen! As a result only 7% of infected dialysis patients that died, did so in an ICU, whereas this was 37% for kidney transplant patients. Surprisingly, although dialysis patients are older and more frail than kidney transplant patient, mortality due to COVID-19 is not much different between these two groups: 23% in dialysis and 17% in kidney transplant patients. This is considerably higher than mortality in age-matched controls, and also higher than in controls with other co-morbidities than kidney disease.

Disclaimer

The numbers of patients in our database increases. Reliability therefore improves. However, we again want to emphasize that these data are preliminary and should be interpreted with caution:

1. Mortality data may change. Many of the patients of which data have been entered in the database are still admitted to hospital and/or ICU. It may also be that especially data are entered of patients with a worse outcome (reporting bias). It is therefore essential that data of ALL KRT PATIENTS that you know that have COVID-19 are entered in the database.
2. There is for several variables a considerable percentage of missing data. To be transparent we have indicated this in our tables. Some data also need validation. In the coming days we will send out queries to resolve these issues. Given these considerations we caution that it is not possible to draw firm conclusions on the present data yet.

Our plans

Next report(s) we hope to include graphical representations, an additional matched control group with detailed information on covariates for the kidney transplant patients, as well as the results of the first multivariate regression analyses exploring independent risk factors for worse outcome.

Help us to reach our goal

We urgently ask the members of the ERA-EDTA to help fill our COVID-19 database as rapidly as possible. More data, especially representative data, are needed. ***To ensure representativeness please send us not only the cases with bad outcomes, but unbiased information on all (!) your patients with COVID-19, independent of their clinical course.*** You will be acknowledged as contributing author on any manuscripts to derive from this initiative. Please spread the news about this database among your colleagues.

How to register as a user

Please send an e-mail to COVID.19.KRT@umcg.nl. This e-mail should contain first name and surname, name of institution (in English) and country. We will reply as soon as possible with further details and instructions.

How can we help you?

We have a full set of documents available, that may help you to get national or local IRB approval. There is also a template for a Data Transfer Agreement. In case you have questions or comments, please contact us via COVID.19.KRT@umcg.nl

Best regards,

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On behalf of the ERACODA Working Group
Dr. Casper Franssen, Lead Dialysis Sub-database
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Prof. Ron Gansevoort, Member ERA-EDTA Council
Dr. Marc Hemmelder, Director Dutch National KRT Registry
Prof. Kitty Jager, Director ERA-EDTA Registry

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Overall data set (weekly output)

Country specific data sets (biweekly output, for countries with >40 patients)

Same tables as above, to be found as separate file

Patient and COVID-19 characteristics at presentation

According to type of kidney replacement therapy

Table 1

	Kidney transplant patients	Dialysis patients	Missing data (n)
Number of patients, N	115	133	
Male sex, %	69	59	
Age, y	59 ± 13	67 ± 14	
BMI, kg/m^2	25.9 ± 4.4	26.4 ± 6.2	27/19
Race			
Asian, %	0	6	
Black or African descent, %	3	4	
White or Caucasian, %	74	89	
Other, %	3	3	
Unknown, %	21	0	
Tobacco use			
Current, %	2	5	
Prior, %	25	20	
Never, %	38	34	
Unknown, %	35	42	
Clinical frailty scale			32/14
Very fit, %	17	8	
Well, %	35	8	
Managing well, %	28	18	
Vulnerable, %	11	14	
Mildly frail, %	5	17	
Moderately frail, %	3	13	
Severely frail, %	1	18	
Very severely frail, %	0	3	
Terminally ill, %	0	1	
Primary kidney disease			50/0
Primary glomerulonephritis, %	18	11	
Pyelonephritis, %	6	3	
Interstitial nephritis, %	3	1	
Familial/hereditary renal diseases, %	20	7	
Congenital diseases, %	5	2	
Vascular diseases, %	8	17	
Secondary glomerular/systemic disease, %	6	10	
Diabetic kidney disease, %	15	29	
Other, %	5	6	
Unknown, %	14	15	

Hemodialysis, %	NA	94	
Peritoneal dialysis, %	NA	6	
Residual diuresis > +/- 200 ml/day	NA	41	-/5
Comorbidities			
Obesity, %	10	22	27/19
Hypertension, %	72	83	
Diabetes Mellitus, %	27	44	
Coronary artery disease, %	25	35	
Heart failure, %	7	22	
Chronic lung disease, %	9	12	
Active malignancy, %	5	8	
Auto-immune disease, %	3	3	
Use of RAASi use at presentation			
ACE-inhibitors, %	25	10	5/6
ARB, %	18	9	5/6
Use of immunosuppressive medication at presentation			
Prednisone, %	83	4	8/6
Tacrolimus, %	77	1	7/6
Cyclosporine, %	14	2	16/6
Mycophenolate, %	63	2	9/6
mTOR inhibitor, %	13	1	16/6
Azathioprine, %	6	0	16/6
Belatacept, %	0	0	17/6
Anti TNF A, %	0	0	16/6
Rituximab, %	0	0	16/6
Cyclophosphamide, %	0	0	16/6
Other, %	0	3	17/6
COVID-19 symptoms			
Sore throat, %	14	18	19/3
Cough, %	71	55	8/2
Shortness of breath, %	45	41	12/2
Fever, %	72	66	18/3
Headache, %	15	13	19/3
Nausea or vomiting, %	18	15	15/3
Diarrhea, %	28	14	15/3
Myalgia or arthralgia, %	21	27	19/4
Temperature, Celcius	37.8 ± 1.0	37.6 ± 1.0	10/8

Respiration rate, /minute	20.1 ± 6.5	19.4 ± 5.7	23/25
Oxygen saturation with room air, %	93.9 ± 8.5	94.5 ± 4.5	20/20
Systolic blood pressure, mm Hg	133 ± 20	140 ± 27	18/8
Diastolic blood pressure, mm Hg	79 ± 15	74 ± 17	18/8
Pulse rate, BPM	85 ± 16	83 ± 16	19/11
COVID-19 test result positive, %	96	92	2/0
Abnormalities chest X-ray suggestive for COVID-19, %	64	68	6/8
Abnormalities CT-scan suggestive for COVID-19, %	87	94	7/8
Laboratory results			
Lymphocyte count, x1000/microL	0.9 (0.6-1.5)	1.0 (0.6-1.3)	36/28
eGFR, mL/min	35 (22-53)	NA	29/19
CRP, mg/L	52 (11-84)	34 (9-94)	30/18

Continuous variables are reported as mean ± SD or median (IQR). eGFR is calculated with the creatinine-based CKD-EPI formula. Obesity is defined as BMI > 30 kg/m^2. Abbreviations: ACE, angiotensin converting enzyme; ARB, angiotensin receptor blocker; BMI, body mass index; COVID-19, corona virus disease 2019; CRP, C-reactive protein; eGFR, estimated glomerular filtration rate; mTOR, mammalian target of rapamycin; NA, not applicable; TNF, tumor necrosis factor.

Patient and COVID-19 characteristics at presentation

For patients with a kidney transplant, according to hospital status

Table 2

		Patients with a kidney transplant			
			Admitted to		
	Control group*	Not admitted	Hospital, no ICU	ICU	Deceased **
Number of patients, N	11713	21	71	16	19
Number of patients, %		19	66	15	17
Male sex, %	61	76	69	44	53
Age, y	57 ± 15	56 ± 9	61 ± 14	58 ± 15	73 ± 9
BMI, kg/m^2	25.9 ± 5.7	25.7 ± 3.7	25.8 ± 4.7	26.7 ± 4.2	25.3 ± 5.2
Race					
Asian, %		0	0	0	0
Black or African descent, %		0	1	6	5
White or Caucasian, %		76	79	50	68
Other, %		5	2	6	5
Unknown, %		19	18	38	21
Tobacco use					
Current, %		0	1	6	5
Prior, %		24	30	13	21
Never, %		38	39	37	53
Unknown, %		38	30	44	21
Clinical frailty scale					
Very fit, %		38	12	10	7
Well, %		31	33	50	13
Managing well, %		23	28	30	40
Vulnerable, %		7	14	0	20
Mildly frail, %		0	5	10	13
Moderately frail, %		0	5	0	7
Severely frail, %		0	2	0	0
Very severely frail, %		0	0	0	0
Terminally ill, %		0	0	0	0
Primary kidney disease					
Primary glomerulonephritis, %	23	36	16	20	10
Pyelonephritis, %	8	0	9	0	10
Interstitial nephritis, %	2	0	5	0	10
Familial/hereditary renal diseases, %	17	27	22	0	10
Congenital diseases, %	2	9	5	0	0
Vascular diseases, %	12	0	9	0	20

Secondary glomerular/systemic disease, %	5	9	4	0	0
Diabetic kidney disease, %	9	9	13	60	30
Other, %	5	0	4	0	10
Unknown, %	17	9	13	20	10
Comorbidities					
Obesity, %		5	10	13	16
Hypertension, %		76	72	75	68
Diabetes Mellitus, %		19	28	38	42
Coronary artery disease, %		24	30	19	42
Heart failure, %		0	10	6	26
Chronic lung disease, %		5	11	6	11
Active malignancy, %		0	7	6	21
Auto-immune disease, %		0	7	0	0
Use of RAASi use at presentation					
ACE-inhibitors, %		25	20	50	33
ARB, %		5	21	14	17
Use of immunosuppressives at presentation					
Prednisone, %		90	81	92	89
Tacrolimus, %		85	72	79	78
Cyclosporine, %		6	17	17	22
Mycophenolate, %		78	58	71	44
mTOR inhibitor, %		11	14	17	22
Azathioprine, %		6	8	0	6
Belatacept, %		0	0	0	0
Anti TNF A, %		0	0	0	0
Rituximab, %		0	0	0	0
Cyclophosphamide, %		0	0	0	0
Other, %		0	0	0	0
COVID-19 symptoms					
Sore throat, %	NA	6	14	27	12
Cough, %	NA	80	64	93	83
Shortness of breath, %	NA	11	47	64	78
Fever, %	NA	71	72	73	71
Headache, %	NA	24	16	0	12
Nausea or vomiting, %	NA	11	18	33	29
Diarrhea, %	NA	11	32	42	24
Myalgia or arthralgia, %	NA	24	16	45	18
Temperature, Celcius	NA	37.8 ± 1.1	37.8 ± 1.0	37.8 ± 1.2	37.6 ± 0.9

Respiration rate, /minute	NA	16.4 ± 4.3	19.7 ± 5.4	22.7 ± 9.1	23.0 ± 7.5
Oxygen saturation with room air, %	NA	97.0 ± 1.9	93.3 ± 10.0	94.1 ± 3.3	93.4 ± 4.0
Systolic blood pressure, mm Hg	NA	134 ± 16	135 ± 22	123 ± 16	138 ± 31
Diastolic blood pressure, mm Hg	NA	82 ± 9	80 ± 16	74 ± 16	79 ± 19
Pulse rate, BPM	NA	81 ± 18	87 ± 16	79 ± 13	82 ± 11
COVID-19 test result positive, %	NA	100	94	93	89
Suggestive abnormalities X-ray, %	NA	29	64	89	80
Suggestive abnormalities CT-scan, %	NA	50	89	90	91
Laboratory results					
Lymphocyte count, x1000/microL	NA	2.8 (1.0-7.0)	0.9 (0.6-1.3)	0.6 (0.5-0.7)	0.7 (0.5-1.1)
eGFR, mL/min	NA	59 (53-63)	33 (23-46)	27 (14-51)	20 (13-26)
CRP, mg/L	NA	8 (6-17)	52 (15-83)	89 (55-212)	54 (25-139)

Continuous variables are reported as mean ± SD or median (IQR).

* Control group: formed by the weighted average of patients with a kidney transplant in the ERA-EDTA registry, with weighting with a factor 10 by nationality

** Deceased: these patients are also included in one of the three aforementioned columns (hospital admission y/n, ICU admission y/n)

eGFR is calculated with the creatinine-based CKD-EPI formula. Obesity is defined as BMI > 30 kg/m^2. Abbreviations: ACE, angiotensin converting enzyme; ARB, angiotensin receptor blocker; BMI, body mass index; COVID-19, corona virus disease 2019; CRP, C-reactive protein; eGFR, estimated glomerular filtration rate; mTOR, mammalian target of rapamycin; NA, not applicable; TNF, tumor necrosis factor.

Patient and COVID-19 characteristics at presentation

For patients on dialysis, according to hospital status

Table 3

		Patients on dialysis			
			Admitted to		
	Control group*	Not admitted	Hospital, no ICU	ICU	Deceased **
Number of patients, N	13459	29	87	5	30
Number of patients, %		24	72	4	23
Male sex, %	61	52	64	0	53
Age, y	67 ± 15	66 ± 16	67 ± 14	63 ± 11	71 ± 11
BMI, kg/m^2	27.6 ± 6.8	26.6 ± 7.3	26.3 ± 5.8	26.5 ± 7.8	27.8 ± 6.0
Race					
Asian, %		7	3	0	7
Black or African descent, %		3	5	0	0
White or Caucasian, %		86	90	100	93
Other, %		3	2	0	0
Unknown, %		0	0	0	0
Tobacco use					
Current, %		3	6	0	10
Prior, %		28	20	0	27
Never, %		38	32	40	37
Unknown, %		31	42	60	26
Clinical frailty scale					
Very fit, %		4	11	0	3
Well, %		15	6	20	3
Managing well, %		15	19	20	7
Vulnerable, %		4	18	0	29
Mildly frail, %		22	14	20	17
Moderately frail, %		11	14	0	14
Severely frail, %		22	16	20	21
Very severely frail, %		7	0	20	3
Terminally ill, %		0	1	0	3
Primary kidney disease					
Primary glomerulonephritis, %	13	3	11	0	13
Pyelonephritis, %	6	0	2	20	3
Interstitial nephritis, %	3	0	1	0	0
Familial/hereditary renal diseases, %	7	3	8	20	0
Congenital diseases, %	0	3	1	0	3
Vascular diseases, %	22	24	18	0	27

Secondary systemic disease, %	5	7	10	0	13
Diabetic kidney disease, %	20	24	30	0	30
Other, %	7	14	3	20	3
Unknown, %	17	21	14	40	7
Hemodialysis, %	88	97	95	60	97
Peritoneal dialysis, %	12	3	5	40	3
Residual diuresis > +/- 200 ml/day		55	42	20	41
Comorbidities					
Obesity, %		21	23	20	27
Hypertension, %		93	89	40	83
Diabetes Mellitus, %		41	48	20	47
Coronary artery disease, %		24	40	20	47
Heart failure, %		17	25	20	40
Chronic lung disease, %		7	15	20	20
Active malignancy, %		3	10	0	10
Auto-immune disease, %		7	1	20	3
Use of RAASi use at presentation					
ACE-inhibitors, %		18	10	0	10
ARB, %		7	7	20	3
Use of immunosuppressives at presentation					
Prednisone, %		7	3	0	3
Tacrolimus, %		3	0	0	0
Cyclosporine, %		0	2	0	3
Mycophenolate, %		0	2	0	7
mTOR inhibitor (sirolimus, everolimus), %		3	0	0	0
Azathioprine, %		0	0	0	0
Belatacept, %		0	0	0	0
Anti TNF A, %		0	0	0	0
Rituximab, %		0	0	0	0
Cyclophosphamide, %		0	0	0	0
Other, %		3	2	0	3
COVID-19 symptoms					
Sore throat, %	NA	21	15	100	28
Cough, %	NA	59	56	100	63
Shortness of breath, %	NA	17	51	60	47
Fever, %	NA	65	68	80	73
Headache, %	NA	7	15	25	10
Nausea or vomiting, %	NA	7	16	50	31

Diarrhea, %	NA	17	14	0	24
Myalgia or arthralgia, %	NA	25	29	40	23
Temperature, Celcius	NA	37.6 ± 1.0	37.6 ± 1.1	38.1 ± 0.9	37.6 ± 1.1
Respiration rate, /minute	NA	15.8 ± 3.2	20.2 ± 6.0	23.0 ± 4.0	20.3 ± 5.5
Oxygen saturation with room air, %	NA	96.6 ± 2.1	94.1 ± 4.4	88.6 ± 7.2	93.2 ± 5.4
Systolic blood pressure, mm Hg	NA	143 ± 19	137 ± 27	159 ± 43	132 ± 24
Diastolic blood pressure, mm Hg	NA	73 ± 17	74 ± 16	92 ± 20	71 ± 16
Pulse rate, BPM	NA	79 ± 14	86 ± 16	87 ± 24	81 ± 15
COVID-19 test result positive, %	NA	100	88	80	93
Suggestive abnormalities X-ray, %	NA	25	72	100	72
Suggestive abnormalities CT-scan, %	NA	100	93	100	92
Laboratory results					
Lymphocyte count, x1000/microL	NA	1.4 (0.8-4.5)	0.8 (0.6-1.14)	1.0 (0.7-1.0)	0.7 (0.6-1.1)
eGFR, mL/min	NA	NA	NA	NA	NA
CRP, mg/L	NA	15 (6-46)	43 (10-100)	129 (108-264)	54 (13-119)

Continuous variables are reported as mean ± SD or median (IQR).

* Control group: formed by the weighted average of patients on dialysis in the ERA-EDTA registry, with weighting with a factor 10 by nationality

** Deceased: these patients are also included in one of the three aforementioned columns (hospital admission y/n, ICU admission y/n)

eGFR is calculated with the creatinine-based CKD-EPI formula. Obesity is defined as BMI > 30 kg/m^2. Abbreviations: ACE, angiotensin converting enzyme; ARB, angiotensin receptor blocker; BMI, body mass index; COVID-19, corona virus disease 2019; CRP, C-reactive protein; eGFR, estimated glomerular filtration rate; mTOR, mammalian target of rapamycin; NA, not applicable; TNF, tumor necrosis factor.

Follow-up data of KRT patients with COVID-19

According to type of kidney replacement therapy

Table 4.

	Kidney transplant Patients (n=115)	Dialysis Patients (n=133)	Missing data (n)
Hospitalisation, %	89	77	5/11
Reason for no hospital admission			4/2
No indication, %	100	85	
Logistical reasons related to COVID-19, %	0	7	
Patient/family preferred no admission, %	0	7	
ICU admission, %	18	5	2/2
Reason for no ICU admission			17/8
No indication, %	89	81	
Logistical reasons related to COVID-19, %	2	1	
Patient/family preferred no admission, %	2	1	
Prognosis was too bad, %	7	17	
Intubation, %	16	4	4/2
Reason for no intubation			16/7
No indication, %	85	79	
Logistical reasons related to COVID-19, %	2	1	
Patient/family preferred no admission, %	2	1	
Prognosis was too bad, %	11	19	
Start of CVVH/hemodialysis, %	8	0	14/
Reasons not to start CVVH/hemodialysis			10/
No indication, %	92	NA	
Logistical reasons related to COVID-19, %	0	-	
Patient/family preferred no admission, %	0	-	
Prognosis was too bad, %	8	-	
Continuing kidney replacement therapy during admission, %	NA	94	-/2
Increase in intensity kidney replacement therapy, %	NA	7	-/8
Reason for discontinuation of kidney replacement therapy			
No indication, %	NA	50	
Logistical reasons related to COVID-19, %	NA	0	
Patient/family preferred no admission, %	NA	0	
Prognosis was too bad, %	NA	50	

Continuous variables are reported as mean ± SD or median (IQR). Abbreviations: CVVH, continuous veno-venous hemofiltration; COVID-19, corona virus disease 2019; ICU, intensive care unit; NA, not applicable.

Follow-up data for patients with a kidney transplant with COVID-19

According to hospital status

Table 5.

	Not admitted to hospital (n=21)	Admitted to hospital, no ICU (n= 71)	Admitted to ICU (n= 16)	Deceased* (n= 19)
Organ dysfunction				
Liver (transaminases > 2 times ULN), %	0	3	8	0
Heart (heart failure/new ECG abn), %	0	2	8	13
Kidney (>25% increase in creatinine), %	5	29	27	53
Antiviral therapy, %	0	59	86	76
(Hydroxy)chloroquine , %	-	92	100	83
Lopinavir/ritonavir, %	-	27	44	33
Remdesevir, %	-	0	0	0
Interferon, %	-	3	0	0
Other, %	-	8	11	8
Anti-inflammatory therapy, %	0	12	9	13
Tocilizumab, %	-	13	0	0
Anakinra, %	-	0	0	0
High dose steroids, %	-	63	100	100
Other, %	-	25	0	0
ACE-inhibitor use				
Continued, %	100	62	20	20
Discontinued, %	0	38	80	80
Replaced by ARB, %	0	0	0	0
ARB use				
Continued, %	100	46	50	50
Discontinued, %	0	54	50	50
Change in dose immunosuppressive drugs < 48h after presentation				
Tacrolimus				
No change, %	93	46	45	38
Reduction, %	7	24	27	15
Withdrawal, %	0	30	27	46
Cyclosporine				
No change, %	100	63	50	50
Reduction, %	0	0	0	0
Withdrawal, %	0	36	50	50

Mycophenolate				
No change, %	33	18	30	25
Reduction, %	0	13	0	0
Withdrawal, %	67	68	70	75
Azathioprine				
No change, %	0	20	-	-
Reduction, %	0	20	-	-
Withdrawal, %	100	60	-	-
mTor inhibitor				
No change, %	50	13	50	25
Reduction, %	0	0	0	0
Withdrawal, %	50	87	50	75
Belatacept				
No change, %	-	-	-	-
Reduction, %	-	-	-	-
Withdrawal, %	-	-	-	-
Prednisone				
No change, %	69	55	33	38
Reduction, %	0	0	0	0
Increase, %	31	45	67	62
Anti TNF A				
No change, %	-	-	-	-
Reduction, %	-	-	-	-
Withdrawal, %	-	-	-	-
Rituximab				
No change, %	-	-	-	-
Reduction, %	-	-	-	-
Withdrawal, %	-	-	-	-
Cyclophosphamide				
No change, %	-	-	-	-
Reduction, %	-	-	-	-
Withdrawal, %	-	-	-	-

Continuous variables are reported as mean ± SD or median (IQR). Abbreviations: ACE, angiotensin converting enzyme; ARB, angiotensin receptor blocker; COVID-19, corona virus disease 2019; ICU, intensive care unit; mTOR, mammalian target of rapamycin; NA, not applicable; TNF, tumor necrosis factor.

* Deceased: these patients are also included in one of the three aforementioned columns (hospital admission y/n, ICU admission y/n)

Follow-up data for patients on dialysis with COVID-19

According to hospital status

Table 6.

	Not admitted to hospital (n= 29)	Admitted to hospital, no ICU (n= 87)	Admitted to ICU (n= 5)	Deceased* (n= 30)
Continuing KRT during admission, %	NA	93	100	86
Increase in intensity KRT, %	NA	5	40	16
Reason for discontinuation KRT				
No indication, %	NA	50	-	25
Logistical reasons related to COVID-19, %	NA	0	-	0
Patient/family preferred no admission, %	NA	0	-	0
Prognosis was too bad, %	NA	50	-	75
Organ dysfunction				
Liver (transaminases > 2 times ULN), %	NA	13	40	14
Heart (heart failure/new ECG abn), %	NA	13	0	28
Antiviral therapy, %	14	58	100	50
(Hydroxy)chloroquine , %	75	94	100	100
Lopinavir/ritonavir, %	25	38	40	40
Remdesevir, %	0	4	0	0
Interferon, %	0	6	0	7
Other, %	0	4	60	14
Anti-inflammatory therapy, %	3	11	20	17
Tocilizumab, %	0	10	0	20
Anakinra, %	0	10	0	0
High dose steroids, %	0	80	0	80
Other, %	100	10	100	20
ACE-inhibitor use				
Continued, %	75	56	-	33
Discontinued, %	25	44	-	67
Replaced by ARB, %	0	0	-	0
ARB use				
Continued, %	100	83	0	100
Discontinued, %	0	17	100	0

Continuous variables are reported as mean ± SD or median (IQR). Abbreviations: ACE, angiotensin converting enzyme; ARB, angiotensin receptor blocker; COVID-19, corona virus disease 2019; ICU, intensive care unit; NA, not applicable.

* Deceased: these patients are also included in one of the three aforementioned columns (hospital admission y/n, ICU admission y/n)

Preliminary outcome of KRT patients with COVID-19*

According to type of kidney replacement therapy

Table 7.

	Kidney transplant patients (n= 115)	Dialysis patients (n= 133)	Missing data (n)
Status of subjects sent home			
N	21	29	
Alive, %	100	100	
Deceased, %	0	0	
Lost to follow-up, %	0	0	
Status of subjects admitted to hospital			
Number of patients	87	92	
Alive, %	78	67	
Deceased, %	22	33	
Lost to follow-up, %	0	0	
Status of subjects admitted to hospital and alive			
Number of patients	68	62	
Still admitted, %	42	18	
Transferred to another hospital, %	3	3	
Transferred to a nursing home, %	4	8	
Discharged to home, %	51	71	
Cause of death related to COVID-19, %	100	93	5/0

Abbreviations: COVID-19, corona virus disease 2019.

* These data relate to patients admitted to hospital only, and are preliminary. Some patients are still admitted, and their vital status can therefore yet change during the admission.