Item S1. Details of analytical methods for the AKI-KRT subcohort

A. Missing variables

Missing variables

	Missing
Age	0
Sex	0
Race	190 (21.7%)
Ethnicity	103 (11.8%)
Diabetes status	0
Baseline creatinine	0
Initial mode of KRT	8 (0.9%)
Albumin on KRT day 1	155 (17.7%)
Arterial pH on KRT day 1	98 (11.2%)
UOP on KRT day 1	120 (13.7%)
Vasopressors/inotropes on KRT day 1	129 (14.7%)
Major cardiac event prior to or on KRT day 1	0

B. Imputation of missing values

Imputation by last available value was used to impute values for albumin, arterial pH, urine output, and number of vasopressors/inotropes needed on KRT day 1. For arterial pH, urine output, and vasopressors/inotropes needed, imputation by last available value was restricted to within two days prior to KRT initiation. After close examination of the manually entered data, remaining missing values for vasopressors/inotropes needed were imputed as 0.

Imputation of missing values

	Missing	Missing after imputation as described
Albumin on KRT day 1	155 (17.7%)	24 (2.7%)
Arterial pH on KRT day 1	98 (11.2%)	53 (6.1%)
UOP on KRT day 1	120 (13.7%)	89 (10.2%)
Number of vasopressors/inotropes needed on KRT day 1	129 (14.7%)	0 (0.0%)

Other remaining missing values were imputed by multiple imputation (MI).

For patients with unknown race, the arithmetic mean of their eGFR-AA and eGFR-NAA was used for analyses. Of note, all analyses stratified eGFR by CKD stage, and race would have impacted the eGFR stratum of 18 patients, out of the 190 patients with missing race.

C. Imputation of date of recovery

While date of recovery was not collected, every patient's treatment with KRT was recorded for the first 14 days of ICU admission. The following rules for imputation of date of recovery were applied, see the table below for examples illustrating these rules.

1. For patients discharged by ICU day 14, the last recorded date of dialysis was imputed as the date of recovery. (Example 1)

2. For patients discharged between ICU day 15 and 21, if they did not receive KRT on ICU days 12-14, the last recorded date of dialysis was imputed as the date of recovery. (Example 2)

3. For patients off dialysis from day 8 to day 14, if the last available creatinine was less than the creatinine on the last recorded day of dialysis, the last recorded date of dialysis was imputed as the date of recovery. (Example 3)

4. One of the authors (CMH) reviewed the creatinine trend for the remaining five patients who did not receive dialysis from day 8 to 14, and for 2 additional patients, the last recorded date of dialysis was imputed as the date of recovery.

5. For all remaining patients with recovery by the date of discharge, date of recovery was imputed to be date of discharge.

Imputation of date of recovery

ICU Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Day of discharge	Imputed day of recovery	No. of subjects this rule applied to
Example 1															12	5	6
Example 2															17	10	11
Example 3															27	6	9
Cr (mg/dL)	3.41	4.89	7.17	7.67	4.7	4.35	3.51	4.1	3.93	3.61	3.29	2.88	2.94	2.32			

Shaded blocks indicate receipt of KRT

Table S1. Multinomial logistic regression model, with discharge without KRT as the reference

	Univariate		Primary Multivariable Model		Parsimonious Multivariable Model		Expanded Multivariable Model	
Outcome	**Nonrecovery vs Recovery**	**Death vs Recovery**	**Nonrecovery vs Recovery**	**Death vs Recovery**	**Nonrecovery vs Recovery**	**Death vs Recovery**	**Nonrecovery vs Recovery**	**Death vs Recovery**
Age, per decade of life	1.05 (0.87, 1.28)	1.25 (1.10, 1.43) *	1.02 (0.82, 1.27)	1.21 (1.04, 1.41) *	1.02 (0.82, 1.26)	1.26 (1.09, 1.45) *	1.03 (0.83, 1.29)	1.19 (1.02, 1.38) *
Female	0.93 (0.54, 1.58)	0.84 (0.59, 1.20)	0.67 (0.38, 1.21)	0.83 (0.56, 1.22)	0.75 (0.43, 1.32)	0.85 (0.59, 1.23)	0.65 (0.36, 1.17)	0.85 (0.57, 1.26)
Black race	1.29 (0.73, 2.25)	0.67 (0.47, 0.97) *	1.08 (0.55, 2.10)	0.64 (0.41, 1.00)	1.18 (0.61, 2.30)	0.70 (0.46, 1.07)	1.04 (0.53, 2.06)	0.66 (0.42, 1.05)
Hispanic ethnicity	0.75 (0.37, 1.52)	1.05 (0.70, 1.56)	0.95 (0.41, 2.21)	0.91 (0.55, 1.49)	0.98 (0.42, 2.26)	1.00 (0.63, 1.59)	0.93 (0.39, 2.22)	0.97 (0.58, 1.62)
DM	1.11 (0.67, 1.82)	0.84 (0.60, 1.16)	1.00 (0.58, 1.71)	0.82 (0.57, 1.17)	0.96 (0.57, 1.63)	0.80 (0.57, 1.13)	0.98 (0.56, 1.71)	0.82 (0.56, 1.18)
Baseline eGFR, mL/min/1.73m^2								
>60	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
31-60	2.04 (1.08, 3.83) *	1.28 (0.86, 1.92)	2.09 (1.09, 4.04) *	1.35 (0.88, 2.09)	2.01 (1.05, 3.83) *	1.22 (0.81, 1.85)	2.09 (1.07, 4.08) *	1.39 (0.89, 2.17)
16-30	4.01 (1.94, 8.28) *	0.93 (0.53, 1.64)	4.27 (1.99, 9.17) *	0.91 (0.49, 1.67)	4.13 (1.96, 8.71) *	0.95 (0.53, 1.70)	3.91 (1.74, 8.78) *	1.02 (0.54, 1.95)
≤ 15	9.68 (3.52, 26.57) *	2.47 (1.02, 5.95) *	8.69 (3.07, 24.55) *	2.60 (1.04, 6.47) *	9.89 (3.58, 27.32) *	2.54 (1.04, 6.17) *	8.86 (3.08, 25.49) *	2.61 (1.03, 6.58) *
Initial mode of KRT, CKRT vs iHD/PD/Other	0.82 (0.48, 1.40)	0.77 (0.54, 1.10)	1.04 (0.58, 1.85)	0.73 (0.50, 1.08)			1.10 (0.60, 2.03)	0.75 (0.50, 1.13)
Albumin on KRT day 1, per 0.5 (g/dL)	1.17 (0.94, 1.45)	0.88 (0.76, 1.01)	1.21 (0.96, 1.52)	0.89 (0.76, 1.04)			1.20 (0.95, 1.52)	0.91 (0.77, 1.07)
Arterial pH on KRT day 1, per 0.1	1.12 (0.86, 1.47)	0.66 (0.56, 0.79) *	1.21 (0.90, 1.62)	0.72 (0.60, 0.87) *			1.20 (0.88, 1.64)	0.73 (0.59, 0.89) *
UOP on KRT day 1 (mL/day)								
500+	Ref	Ref	Ref	Ref			Ref	Ref
50-499	1.87 (1.05, 3.33) *	1.75 (1.22, 2.52) *	2.10 (1.14, 3.88) *	1.42 (0.96, 2.10)			2.18 (1.17, 4.06) *	1.41 (0.94, 2.12)
<50	4.14 (1.85, 9.30) *	4.45 (2.37, 8.35) *	4.02 (1.72, 9.39) *	3.78 (1.96, 7.27) *			4.10 (1.71, 9.81) *	3.88 (1.99, 7.56) *
Vasopressors/inotropes on KRT day 1								
0	Ref	Ref	Ref	Ref			Ref	Ref
1	0.90 (0.51, 1.59)	1.22 (0.82, 1.81)	0.94 (0.51, 1.74)	1.13 (0.74, 1.74)			1.12 (0.58, 2.18)	0.94 (0.60, 1.47)
≥2	0.84 (0.42, 1.70)	2.18 (1.38, 3.44) *	0.87 (0.40, 1.86)	1.76 (1.06, 2.92) *			1.01 (0.45, 2.28)	1.40 (0.83, 2.38)
Major cardiac event prior to or on KRT day 1	1.02 (0.25, 4.16)	2.65 (1.11, 6.29) *	1.07 (0.25, 4.62)	2.47 (0.99, 6.18)			1.32 (0.30, 5.86)	2.28 (0.88, 5.91)
Steroid administration prior to or on KRT day 1	0.60 (0.32, 1.11)	1.78 (1.24, 2.57) *					0.60 (0.31, 1.18)	1.66 (1.11, 2.48) *
Tocilizumab administration prior to or on KRT day 1	0.99 (0.53, 1.82)	0.78 (0.52, 1.18)					1.41 (0.71, 2.78)	0.80 (0.50, 1.27)
Remdesivir administration prior to or on KRT day 1	0.45 (0.13, 1.62)	0.96 (0.50, 1.84)					0.86 (0.22, 3.26)	0.80 (0.38, 1.66)
Mechanical ventilation on KRT day 1	0.46 (0.20, 1.03)	4.17 (1.80, 9.68) *					0.75 (0.26, 2.11)	4.47 (1.67, 11.98) *
Platelets (x10^3/μL)								
150+	Ref	Ref					Ref	Ref
100-149	0.77 (0.31, 1.92)	1.56 (0.92, 2.66)					0.64 (0.25, 1.65)	1.43 (0.81, 2.53)
<100	1.20 (0.28, 5.13)	3.94 (1.55, 10.02) *					0.83 (0.18, 3.87)	3.71 (1.37, 10.02) *
Bilirubin (mg/dL)								
<1.2	Ref	Ref					Ref	Ref
1.2-1.9	0.55 (0.23, 1.32)	1.41 (0.87, 2.29)					0.72 (0.28, 1.83)	1.11 (0.65, 1.89)
2.0+	0.67 (0.23, 1.91)	1.79 (0.99, 3.24)					0.71 (0.23, 2.22)	1.54 (0.79, 3.02)

Each cell displays OR (95% CI) p-value. eGFR, estimated glomerular filtration rate; KRT, kidney replacement therapy; CKRT, continuous kidney replacement therapy; iHD, intermittent hemodialysis; PD, peritoneal dialysis; UOP, urine output
All outcomes here were assessed upon discharge.
* $p < 0.05$

Table S2. Ordinal logistic regression model

	Univariate		Primary Multivariable Model		Parsimonious Multivariable Model		Expanded Multivariable Model	
Outcome	**Nonrecovery or Death vs Recovery**	**Death vs Survival**	**Nonrecovery or death vs Recovery**	**Death vs Survival**	**Nonrecovery or death vs Recovery**	**Death vs Survival**	**Nonrecovery or death vs Recovery**	**Death vs Survival**
Age, per 10 years	1.22 (1.07, 1.39) *	1.23 (1.10, 1.38) *	1.19 (1.01, 1.39) *	1.21 (1.06, 1.38) *	1.23 (1.07, 1.41) *	1.24 (1.10, 1.40) *	1.36 (1.16, 1.61) *	1.35 (1.18, 1.54) *
Female	0.85 (0.60, 1.21)	0.86 (0.63, 1.18)	0.74 (0.49, 1.12)	1.02 (0.72, 1.44)	0.82 (0.57, 1.19)	0.97 (0.70, 1.34)	0.82 (0.54, 1.27)	1.11 (0.78, 1.57)
Black race	0.74 (0.52, 1.05)	0.62 (0.45, 0.86) *	0.75 (0.48, 1.18)	0.59 (0.39, 0.89) *	0.77 (0.52, 1.15)	0.66 (0.45, 0.95) *	0.92 (0.61, 1.38)	0.82 (0.57, 1.18)
Hispanic ethnicity	1.00 (0.67, 1.49)	1.14 (0.79, 1.65)	0.92 (0.55, 1.54)	0.88 (0.54, 1.41)	0.98 (0.63, 1.53)	0.99 (0.64, 1.51)	1.01 (0.61, 1.68)	1.04 (0.67, 1.62)
Diabetes	0.87 (0.63, 1.20)	0.81 (0.61, 1.07)	0.84 (0.58, 1.23)	0.84 (0.62, 1.15)	0.86 (0.61, 1.21)	0.81 (0.60, 1.09)	0.95 (0.66, 1.38)	0.91 (0.67, 1.24)
Baseline eGFR, mL/min/1.73m^2								
>60	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
30-60	1.35 (0.91, 2.01)	1.05 (0.74, 1.49)	1.39 (0.90, 2.14)	1.07 (0.74, 1.57)	1.27 (0.85, 1.91)	1.01 (0.70, 1.45)	1.16 (0.74, 1.84)	0.92 (0.63, 1.35)
15-29	1.21 (0.70, 2.09)	0.56 (0.36, 0.89) *	1.24 (0.69, 2.20)	0.53 (0.32, 0.87) *	1.26 (0.72, 2.21)	0.58 (0.36, 0.93) *	1.26 (0.68, 2.34)	0.70 (0.42, 1.19)
<15	3.12 (1.31, 7.40) *	0.86 (0.49, 1.49)	3.32 (1.37, 8.06) *	0.91 (0.51, 1.65)	3.27 (1.37, 7.82) *	0.88 (0.50, 1.54)	1.31 (0.66, 2.59)	0.80 (0.46, 1.40)
Initial mode of KRT, CKRT vs iHD/PD/Other	0.78 (0.55, 1.11)	0.83 (0.61, 1.12)	0.86 (0.57, 1.31)	0.68 (0.48, 0.95) *			0.98 (0.63, 1.50)	0.90 (0.64, 1.28)
Albumin on KRT day 1, per 0.5 (g/dL)	0.92 (0.79, 1.05)	0.84 (0.74, 0.95) *	0.99 (0.84, 1.16)	0.83 (0.72, 0.95) *			0.95 (0.80, 1.11)	0.84 (0.73, 0.97) *
Arterial pH on KRT day 1, per 0.1	0.73 (0.61, 0.87) *	0.64 (0.55, 0.74) *	0.80 (0.65, 0.98) *	0.67 (0.57, 0.80) *			0.98 (0.81, 1.19)	0.98 (0.85, 1.14)
UOP on KRT day 1 (mL/day)								
>500	Ref	Ref	Ref	Ref			Ref	Ref
50-500	1.77 (1.24, 2.52) *	1.46 (1.06, 2.02) *	1.65 (1.08, 2.52) *	1.12 (0.78, 1.61)			1.17 (0.76, 1.80)	0.91 (0.64, 1.31)
<50	4.41 (2.38, 8.18) *	2.59 (1.60, 4.18) *	3.88 (2.02, 7.45) *	2.25 (1.35, 3.74) *			1.32 (0.74, 2.34)	1.13 (0.72, 1.76)
Vasopressors/inotropes on KRT day 1								
0	Ref	Ref	Ref	Ref			Ref	Ref
1	1.16 (0.79, 1.70)	1.26 (0.90, 1.78)	1.12 (0.73, 1.73)	1.09 (0.75, 1.58)			0.97 (0.62, 1.51)	0.93 (0.63, 1.37)
≥2	1.92 (1.22, 3.01) *	2.30 (1.55, 3.42) *	1.41 (0.83, 2.38)	1.82 (1.17, 2.83) *			1.09 (0.63, 1.88)	1.32 (0.84, 2.07)
Major cardiac event prior to or on KRT day 1	2.41 (1.02, 5.71) *	2.63 (1.27, 5.45) *	2.11 (0.82, 5.47)	2.36 (1.08, 5.15) *			1.03 (0.38, 2.75)	1.13 (0.59, 2.15)
Steroid administration prior to or on KRT day 1	1.57 (1.10, 2.25) *	2.08 (1.51, 2.87) *					1.02 (0.68, 1.52)	1.44 (1.02, 2.03) *
Tocilizumab administration prior to or on KRT day 1	0.81 (0.54, 1.21)	0.78 (0.55, 1.12)					0.98 (0.61, 1.55)	0.93 (0.62, 1.39)
Remdesivir administration prior to or on KRT day 1	0.88 (0.46, 1.69)	1.17 (0.64, 2.14)					0.92 (0.39, 2.18)	1.09 (0.55, 2.17)
Mechanical ventilation on KRT day 1	2.07 (1.03, 4.17) *	5.74 (2.73, 12.07) *					0.92 (0.39, 2.19)	1.35 (0.61, 2.99)
Platelets (x10^3/μL)								
150+	Ref	Ref					Ref	Ref
100-149	1.44 (0.85, 2.44)	1.69 (1.06, 2.70) *					1.02 (0.53, 1.94)	1.12 (0.69, 1.81)
<100	3.51 (1.38, 8.91) *	3.70 (1.73, 7.90) *					1.05 (0.36, 3.04)	1.15 (0.61, 2.15)
Bilirubin (mg/dL)								
<1.2	Ref	Ref					Ref	Ref
1.2-1.9	1.27 (0.78, 2.05)	1.67 (1.07, 2.59) *					0.93 (0.56, 1.52)	1.24 (0.79, 1.93)
2.0+	1.60 (0.89, 2.89)	2.02 (1.19, 3.43) *					0.96 (0.47, 1.97)	1.22 (0.72, 2.06)

Each cell displays OR (95% CI) p-value.

* $p < 0.05$

eGFR, estimated glomerular filtration rate; KRT, kidney replacement therapy; CKRT, continuous kidney replacement therapy; iHD, intermittent hemodialysis; PD, peritoneal dialysis; UOP, urine output

All outcomes here were assessed upon discharge. "Survival" represents survival to discharge with either recovery or nonrecovery of kidney function.

Table S3. Cause-specific hazard model

	Univariate		Primary Multivariable Model		Parsimonious Multivariable Model		Expanded Multivariable Model	
Outcome	**Recovery**	**Death**	**Recovery**	**Death**	**Recovery**	**Death**	**Recovery**	**Death**
Age, per decade of life	0.90 (0.79, 1.01)	1.12 (1.04, 1.20) *	0.89 (0.77, 1.02)	1.10 (1.02, 1.18) *	0.88 (0.77, 1.01)	1.13 (1.05, 1.22) *	0.90 (0.78, 1.04)	1.09 (1.01, 1.17) *
Female	1.04 (0.77, 1.41)	0.94 (0.79, 1.13)	1.12 (0.80, 1.57)	0.96 (0.79, 1.16)	1.07 (0.77, 1.48)	0.96 (0.79, 1.15)	1.03 (0.72, 1.46)	0.99 (0.81, 1.20)
Black race	1.53 (1.10, 2.13) *	0.89 (0.74, 1.06)	1.75 (1.20, 2.57) *	0.93 (0.75, 1.15)	1.54 (1.05, 2.24) *	0.93 (0.76, 1.15)	1.76 (1.19, 2.59) *	0.95 (0.77, 1.19)
Hispanic ethnicity	0.87 (0.59, 1.28)	1.03 (0.84, 1.27)	1.09 (0.70, 1.72)	0.99 (0.77, 1.26)	0.95 (0.62, 1.46)	1.05 (0.83, 1.33)	1.02 (0.64, 1.63)	0.99 (0.78, 1.27)
DM	1.08 (0.81, 1.44)	0.92 (0.79, 1.09)	1.07 (0.78, 1.46)	0.95 (0.80, 1.13)	1.14 (0.84, 1.54)	0.91 (0.77, 1.07)	1.09 (0.78, 1.50)	0.99 (0.84, 1.18)
Baseline eGFR, mL/min/1.73m^2								
>60	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
31-60	0.95 (0.67, 1.36)	1.13 (0.93, 1.37)	1.00 (0.68, 1.45)	1.17 (0.96, 1.43)	1.00 (0.69, 1.43)	1.09 (0.89, 1.33)	0.92 (0.63, 1.36)	1.20 (0.98, 1.47)
16-30	0.81 (0.50, 1.32)	0.77 (0.57, 1.04)	0.77 (0.46, 1.28)	0.75 (0.55, 1.02)	0.74 (0.45, 1.22)	0.77 (0.57, 1.04)	0.74 (0.43, 1.25)	0.77 (0.56, 1.05)
≤ 15	0.31 (0.14, 0.71) *	0.88 (0.63, 1.21)	0.34 (0.14, 0.79) *	0.96 (0.68, 1.34)	0.31 (0.13, 0.70) *	0.88 (0.64, 1.22)	0.29 (0.12, 0.69) *	1.00 (0.71, 1.40)
Initial mode of KRT, CKRT vs iHD/PD/Other	1.20 (0.87, 1.64)	0.91 (0.76, 1.08)	1.08 (0.76, 1.54)	0.87 (0.72, 1.04)			1.21 (0.84, 1.75)	0.90 (0.75, 1.09)
Albumin on KRT day 1, per 0.5 (g/dL)	1.00 (0.88, 1.14)	0.91 (0.85, 0.98) *	0.96 (0.84, 1.10)	0.92 (0.85, 0.99) *			0.96 (0.83, 1.11)	0.93 (0.86, 1.00)
Arterial pH on KRT day 1, per 0.1	1.13 (0.95, 1.35)	0.74 (0.68, 0.80) *	1.12 (0.94, 1.34)	0.77 (0.71, 0.83) *			1.05 (0.88, 1.27)	0.77 (0.71, 0.84) *
UOP on KRT day 1 (mL/day)								
500+	Ref	Ref	Ref	Ref			Ref	Ref
50-499	0.68 (0.50, 0.93) *	1.19 (0.98, 1.45)	0.66 (0.46, 0.93) *	1.00 (0.81, 1.23)			0.62 (0.43, 0.89) *	0.97 (0.78, 1.19)
<50	0.41 (0.23, 0.74) *	1.65 (1.30, 2.10) *	0.41 (0.22, 0.77) *	1.51 (1.18, 1.92) *			0.41 (0.22, 0.76) *	1.45 (1.14, 1.85) *
Vasopressors/inotropes on KRT day 1								
0	Ref	Ref	Ref	Ref			Ref	Ref
1	0.77 (0.56, 1.08)	1.07 (0.87, 1.33)	0.77 (0.54, 1.11)	1.02 (0.81, 1.27)			0.87 (0.59, 1.27)	0.92 (0.74, 1.16)
≥2	0.70 (0.47, 1.04)	1.67 (1.34, 2.09) *	0.80 (0.51, 1.27)	1.49 (1.17, 1.89) *			0.89 (0.56, 1.43)	1.33 (1.04, 1.69) *
Major cardiac event prior to or on KRT day 1	0.83 (0.37, 1.88)	2.13 (1.58, 2.88) *	0.70 (0.29, 1.70)	2.02 (1.48, 2.76) *			0.57 (0.23, 1.42)	1.99 (1.45, 2.73) *
Steroid administration prior to or on KRT day 1	1.09 (0.79, 1.51)	1.54 (1.30, 1.82) *					1.18 (0.83, 1.67)	1.35 (1.13, 1.61) *
Tocilizumab administration prior to or on KRT day 1	0.94 (0.66, 1.34)	0.88 (0.71, 1.10)					0.91 (0.62, 1.35)	0.85 (0.68, 1.07)
Remdesivir administration prior to or on KRT day 1	1.24 (0.70, 2.18)	1.07 (0.77, 1.49)					1.09 (0.58, 2.07)	0.93 (0.66, 1.31)
Mechanical ventilation on KRT day 1	0.35 (0.20, 0.62) *	2.29 (1.22, 4.28) *					0.25 (0.12, 0.50) *	1.67 (0.87, 3.23)
Platelets (x10^3/μL)								
150+	Ref	Ref					Ref	Ref
100-149	1.01 (0.62, 1.62)	1.34 (1.05, 1.70) *					0.91 (0.53, 1.53)	1.46 (1.14, 1.87) *
<100	0.50 (0.21, 1.22)	1.54 (1.16, 2.05) *					0.52 (0.21, 1.30)	1.48 (1.10, 1.99) *
Bilirubin (mg/dL)								
<1.2	Ref	Ref					Ref	Ref
1.2-1.9	0.92 (0.60, 1.42)	1.25 (1.00, 1.57)					0.85 (0.53, 1.38)	1.11 (0.87, 1.41)
2.0+	0.81 (0.47, 1.41)	1.46 (1.13, 1.87) *					0.76 (0.42, 1.37)	1.37 (1.04, 1.80) *

Each cell displays HR (95% CI) p-value.

* $p < 0.05$

eGFR, estimated glomerular filtration rate; KRT, kidney replacement therapy; CKRT, continuous kidney replacement therapy; iHD, intermittent hemodialysis; PD, peritoneal dialysis; UOP, urine output