Table 1.

	No AKI	AKI				Total	p-value
		Total	Recovred	AKD	p-value		
	(N=78,537)	(N=4,824)	(N=4,503)	(N=321)		(N=83361)	
Age	57.9 ± 15.1	62.8 ± 13.5	62.9 ± 13.4	61.0 ± 14.6	0.023	58.1 ± 15.1	<0.001
Male, n(%)	41695 (53.1%)	3206 (66.5%)	3023 (67.1%)	183 (57.0%)	<0.001	44901 (53.9%)	<0.001
Smoking, n(%)					0.196		<0.001
Current	11413 (14.6%)	720 (15.1%)	666 (14.9%)	54 (17.2%)		67677 (81.8%)	
Ex	2645 (3.4%)	313 (6.6%)	299 (6.7%)	14 (4.5%)		12133 (14.7%)	
						2958 (3.6%)	
SBP (mmHg)	122.4 ± 15.8	125.0 ± 17.8	124.9 ± 17.9	126.0 ± 16.5	0.302	122.6 ± 15.9	<0.001
DBP (mmHg)	75.5 ± 11.0	75.5 ± 11.6	75.4 ± 11.6	76.3 ± 11.0	0.212	75.5 ± 11.0	0.985
Heart rate	69.0 ± 12.2	70.9 ± 14.0	70.8 ± 13.9	72.4 ± 15.0	0.126	69.1 ± 12.3	<0.001
Body mass index					0.503		<0.001
<18.5	3063 (4.0%)	242 (5.1%)	223 (5.1%)	19 (6.1%)		3305 (4.0%)	
18.5≤	74383 (96.0%)	4467 (94.9%)	4175 (94.9%)	292 (93.9%)		78850 (96.0%)	
Operation factors							
Departement					<0.001		<0.001
GS	33979 (43.3%)	2670 (55.3%)	2528 (56.1%)	142 (44.2%)		36649 (44.0%)	
NS	13203 (16.8%)	266 (5.5%)	245 (5.4%)	21 (6.5%)		13469 (16.2%)	
OBGY	3387 (4.3%)	175 (3.6%)	159 (3.5%)	16 (5.0%)		3562 (4.3%)	
OS	21640 (27.6%)	850 (17.6%)	802 (17.8%)	48 (15.0%)		22490 (27.0%)	
UR	6328 (8.1%)	863 (17.9%)	769 (17.1%)	94 (29.3%)		7191 (8.6%)	
Admission duration (days)	12.9 ± 18.0	25.8 ± 64.3	25.9 ± 65.1	23.6 ± 51.6	0.441	13.7 ± 23.5	<0.001
Emegency oepration	5911 (7.6%)	560 (11.6%)	527 (11.7%)	33 (10.3%)	0.497	6471 (7.8%)	<0.001
General anesthesia	68130 (87.0%)	4311 (89.6%)	4014 (89.4%)	297 (92.8%)	0.063	10689 (12.9%)	<0.001
Estimated operation duration (hr)	3.2 ± 1.3	3.8 ± 1.7	3.8 ± 1.8	3.3 ± 1.6	<0.001	3.2 ± 1.3	<0.001
Operation duration (hr)	2.9 ± 1.6	4.2 ± 2.5	4.2 ± 2.5	3.5 ± 2.2	<0.001	3.0 ± 1.7	<0.001
Comorbidities							
SPARK score	31.7 ± 11.1	44.0 ± 15.3	44.3 ± 15.3	38.6 ± 13.4	<0.001	32.4 ± 11.7	<0.001
SPARK classification					<0.001		<0.001
Class A	9448 (13.6%)	177 (4.0%)	157 (3.8%)	20 (7.1%)		9625 (13.0%)	
Class B	45260 (65.2%)	1697 (38.7%)	1553 (37.8%)	144 (50.9%)		46957 (63.6%)	
Class C	13533 (19.5%)	1788 (40.7%)	1695 (41.3%)	93 (32.9%)		15321 (20.8%)	
Class D	1175 (1.7%)	728 (16.6%)	702 (17.1%)	26 (9.2%)		1903 (2.6%)	
ASA class					0.018		<0.001
≤3	71150 (92.4%)	3597 (75.9%)	3341 (75.5%)	256 (81.5%)		74747 (91.5%)	
3<	5820 (7.6%)	1145 (24.1%)	1087 (24.5%)	58 (18.5%)		6965 (8.5%)	
Diabetes mellitus, n(%)	9417 (12.0%)	1079 (22.4%)	1034 (23.0%)	45 (14.0%)	<0.001	10496 (12.6%)	<0.001
Hypertension, n(%)	18093 (23.0%)	1615 (33.5%)	1528 (33.9%)	87 (27.1%)	0.015	19708 (23.6%)	<0.001
Coronary artery disease, n(%)	2916 (3.7%)	317 (6.6%)	295 (6.6%)	22 (6.9%)	0.925	3233 (3.9%)	<0.001
Cerebrovascular disease, n(%)	6117 (7.8%)	402 (8.3%)	379 (8.4%)	23 (7.2%)	0.497	6519 (7.8%)	0.18
Malignancy, n(%)	31402 (40.0%)	2207 (45.8%)	2102 (46.7%)	105 (32.7%)	<0.001	33609 (40.3%)	<0.001
Medications							
NSAIDS, n(%)	11400 (14.5%)	607 (12.6%)	561 (12.5%)	46 (14.3%)	0.374	12007 (14.4%)	<0.001
Diuretics, n(%)	2749 (3.5%)	473 (9.8%)	441 (9.8%)	32 (10.0%)	0.996	3222 (3.9%)	<0.001
RAS blocker, n(%)	5558 (7.1%)	628 (13.0%)	595 (13.2%)	33 (10.3%)	0.155	6186 (7.4%)	<0.001
Laboratory findings							
Hemoglobin	13.2 ± 1.8	12.2 ± 2.2	12.2 ± 2.2	12.1 ± 2.2	0.64	13.1 ± 1.9	<0.001
White blood cell count	6.8 ± 2.6	7.0 ± 7.2	7.0 ± 7.3	7.5 ± 3.8	0.045	6.8 ± 3.1	0.022
ESR	20.5 ± 20.6	28.7 ± 26.8	28.5 ± 26.4	31.4 ± 31.5	0.244	20.9 ± 21.1	<0.001
Neutrophil count (%)	59.0 ± 11.1	61.7 ± 12.3	61.7 ± 12.3	62.2 ± 11.5	0.54	59.1 ± 11.2	<0.001
C-reactive protein	0.9 ± 3.0	1.7 ± 4.0	1.7 ± 4.0	2.2 ± 4.6	0.099	1.0 ± 3.1	<0.001
Sodium	140.5 ± 2.6	139.3 ± 4.0	139.4 ± 4.0	139.2 ± 3.9	0.377	140.4 ± 2.7	<0.001
BUN	14.9 ± 5.3	18.0 ± 9.5	18.1 ± 9.6	15.7 ± 7.9	<0.001	15.1 ± 5.7	<0.001
Creatinine	0.9 ± 0.2	1.0 ± 0.5	1.0 ± 0.5	0.8 ± 0.4	<0.001	0.9 ± 0.3	<0.001
eGFR, CKD-EPI	91.9 ± 20.0	80.4 ± 26.5	79.3 ± 25.9	95.9 ± 30.9	<0.001	91.3 ± 20.6	<0.001
Albumin	4.1 ± 0.5	3.7 ± 0.7	3.7 ± 0.7	3.7 ± 0.8	0.958	4.1 ± 0.5	<0.001
Total cholesterol	178.1 ± 40.5	156.5 ± 49.4	156.1 ± 49.2	162.8 ± 50.9	0.025	176.8 ± 41.4	<0.001
LDL cholesterol	104.4 ± 35.5	94.8 ± 41.0	93.9 ± 41.3	108.2 ± 33.5	0.042	103.9 ± 35.9	<0.001
Urinalysis proteinuria	16115 (22.9%)	1616 (36.5%)	1506 (36.4%)	110 (38.5%)	0.519	17731 (23.7%)	<0.001
Urinalysis haematuria	17171 (26.2%)	1496 (39.4%)	1375 (38.9%)	121 (46.5%)	0.017	18667 (26.9%)	<0.001

MO342 **IMPACT OF COVID-19 PANDEMIC ON IN-HOSPITAL ACUTE KIDNEY INJURY EPIDEMIOLOGY AND OUTCOMES: A RETROSPECTIVE COHORT STUDY**

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BACKGROUND AND AIMS: Acute kidney injury (AKI) is a common complication in patients affected by coronavirus disease-19 (COVID-19) and its development is associated with high mortality [1]. However, it is also clear that the COVID-19

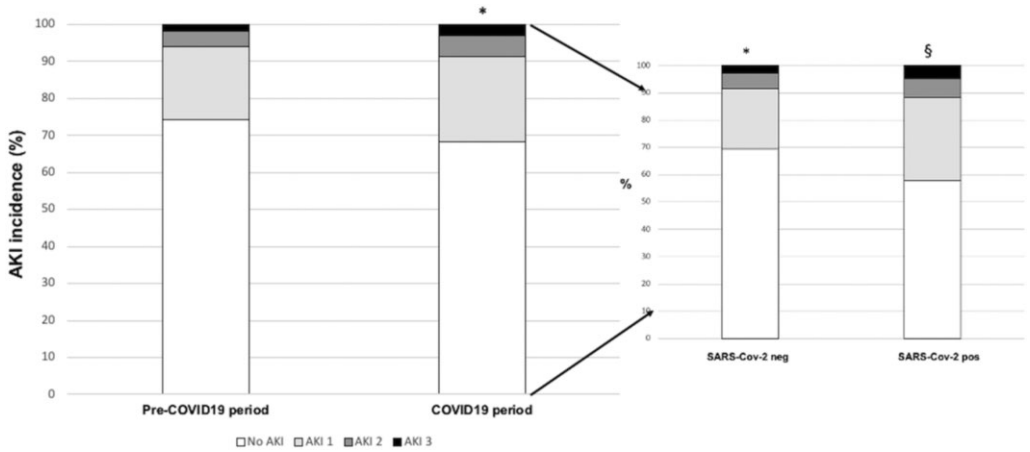


FIGURE 1: Incidence and staging of in-hospital AKI. Comparison of AKI incidence and stages between patients hospitalized in the pre-COVID-19 period (2016–2019) versus COVID-19 period (2020). *$P < 0.0001$ versus pre-COVID-19; § $P < .0001$ versus pre-COVID-19 and SARS-CoV-2 negative.

	Univariate			Multivariate Model		
RISK FACTORS	**HR**	**95% CI**	**p**	**HR**	**95% CI**	**p**
Gender (male)	1.05	0.999 - 1.11	0.103	1.14	1.08 - 1.21	<0.0001
Age	1.04	1.04 – 1.04	<0.0001	1.03	1.03 - 1.04	<0.0001
Comorbidities						
- CVD	3.1	2.90-3.31	<0.0001	2.41	2.25 -2.58	<0.0001
- Sepsis	9.9	9.21-10.6	<0.0001	3.2	2.99 – 3.49	<0.0001
- Advanced Neoplasia	2.08	1.78-2.43	<0.0001	3.05	2.61 – 3.57	<0.0001
Basal sCr	1.24	1.22-1.25	<0.0001	1.19	1.17 -1.21	<0.0001
Medical ward	Ref					
- ICU stay	1.51	1.37 – 1.66	<0.0001	1.94	1.76 – 2.15	<0.0001
Admission in COVID-19 period	1.49	1.39-1.59	<0.0001	1.60	1.49 – 1.73	<0.0001
Sars-Cov-2 infection	2.17	1.91-2.46	<0.0001	1.68	1.46 – 1.93	<0.0001
AKI	2.55	2.40-2.71	<0.0001	1.39	1.3 - 1.48	<0.0001

Abbreviations: CVD, cardiovascular disease; sCr, serum creatinine; ICU, intensive care unit; AKI, acute kidney injury; COVID-19, Coronavirus Disease-19 SARS-COV-2, severe acute respiratory syndrome coronavirus 2

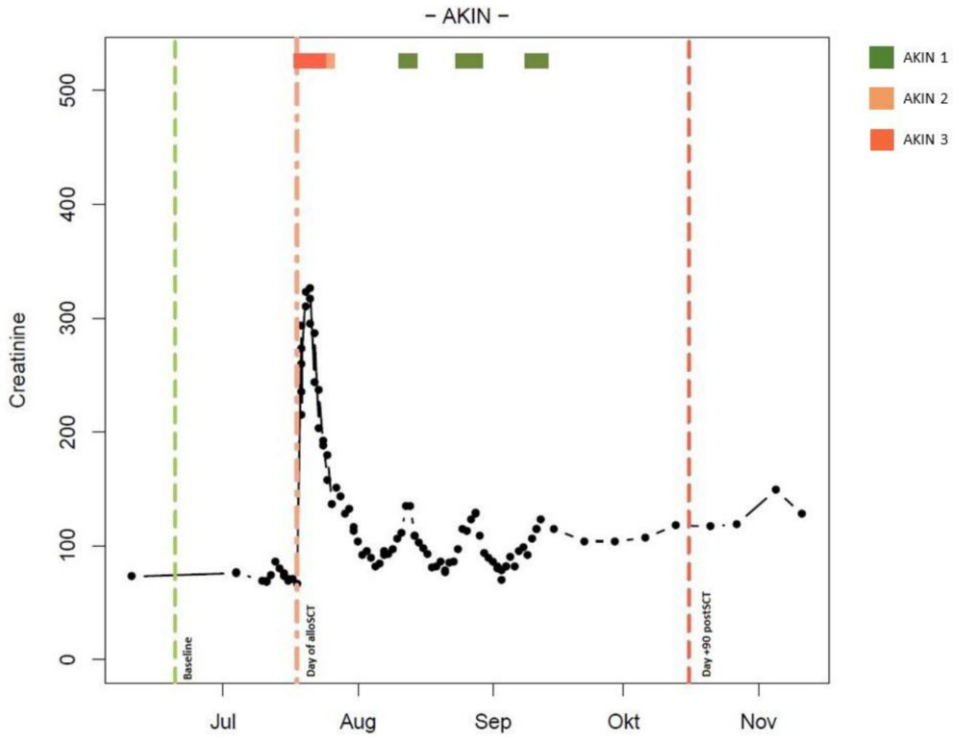
FIGURE 2: Cox regression analyses for intra-hospital mortality in hospitalized patients between 2016 and 2020.

pandemic has effects on the management of diseases not directly related to COVID-19 [2]. In this study, we investigated the impact of the COVID-19 pandemic on general intrahospital AKI incidence and outcomes.

METHOD: We performed a retrospective cohort study comparing data on AKI epidemiology and outcomes of patients hospitalized from January 2016 to December 2019 (pre-COVID-19 period) and from January to December 2020 (COVID-19 period, including both SARS-CoV-2 negative and positive patients). AKI was defined and classified by evaluating the kinetics of intra-hospital creatinine (comparing the peak to the minimum serum creatinine level, considered as the basal value) [3]. The prevalence of chronic kidney disease (CKD) (i.e. eGFR < 60 mL/min) was calculated in patients with previous creatinine values available. Patients with CKD stage 4–5 (i.e. eGFR < 30 mL/min/1.73 m^2) and with a length of hospital stay > 30 days were excluded.

RESULTS: A total of 51 681 patients during the pre-COVID-19 period and 10 ,062 during the COVID-19 period (9026 SARS-CoV-2 negative and 1036 SARS-CoV-2 positive patients) were analysed. Patients admitted in the COVID-19 period were significantly older, with a higher prevalence of males and a reduced prevalence of chronic conditions. In-hospital AKI incidence was 31.7% during the COVID-19 period (30.5% in SARS-CoV-2 negative patients and 42.2% in SARS-CoV-2 positive ones) as compared with 25.9% during the pre-COVID-19 period ($P < .0001$) (Fig. 1). Similarly, the COVID-19 period showed an increase in AKI stage 2–3 incidence both for AKI on CKD and for 'de novo AKI'. In multivariate analysis, demographic characteristics, length of hospital stay, ICU admission, main comorbidities**,** basal sCr, admission period (pre-COVID-19 or COVID-19) and SARS-CoV-2 infection were significantly associated with the risk of AKI. In particular, the admission in the COVID-19 period increased the risk of AKI [OR 1.18, 95% confidence interval (95% CI) 1.12–2.25] regardless of SARS-CoV-2 infection. Moreover, we found that in the COVID-19 period, there was an increased number of patients admitted to ICU, accompanied by a significant increase in the length of hospital stay and intrahospital mortality. In the multivariate analysis, development of AKI, admission in the COVID-19 period and active SARS-CoV-2 infection remained significantly and independently associated with mortality risk (Fig. 2).

CONCLUSION: Overall, we found that AKI was more common and severe in the COVID-19 period, regardless of SARS-CoV-2 infection, when compared with patients



admitted to the same hospital during the four years before the pandemic. So, we provide evidence that the COVID-19 pandemic has changed general in-hospital AKI epidemiology. These findings call attention to the need to adapt the resources dedicated to the prevention and management of the intra-hospital AKI in response to health emergencies.

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MO343 DEEP ANALYSIS OF THE AKI—CKD IN ALLOGENEIC STEM CELL TRANSPLANTATION—A BIG DATA APPROACH

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BACKGROUND AND AIMS: Acute kidney injury (AKI) is a common complication in allogeneic stem cell transplantation (SCT). Although short-lived, i.e. < 90 days, in the majority of patients renal injury can persist for more than 3 months fulfilling the criteria of chronic kidney disease (CKD). So far, only a few publications have shown robust data based on larger patient populations. The aim of this project is to analyse the incidence and severity of AKI in the context of an allogeneic SCT and the transition into CKD.

METHOD: Over a 17-year period, 1394 allogeneic stem cell transplants were performed at our tertiary center. Of those, 42 were second transplants. For 1387, a detailed history of creatinine ($n = 142\,563$) and eGFR ($n = 96\,689$) could be extracted from the Enterprise Clinical Research Data Warehouse. The classification of the respective AKI stages was based on the current KDIGO classification relying solely on the changes in serum creatinine. For AKI, an increase in serum creatinine of $\geq$ 0.3 mg/dL (26.5 µmol/L) within 48 h or an increase in serum creatinine to $\geq 1.5\times$ baseline within 7 days was used. Persistence of impaired renal function beyond day 90 was defined as CKD. For the analysis of big data and classification of the AKI/CKD an algorithm was programmed. Validation of the results was performed using a colour-coded visualization of renal function (Fig. 1).

RESULTS: Between 1 January 2003 and 31 December 2020, 239 252 values for creatinine and eGFR were enriched for 1387 transplantations for a period between day −28 before today + 118 after allogeneic stem cell transplantation. The overall incidence of AKI was 86% ($n = 1199$). A total of 993 patients (83%) have shown an AKIN 1, 173 (14%) an AKIN 2 and 33 (3%) an AKIN 3. Of those, 122 (13%) patients died before day + 90 after allogeneic stem cell transplantation and were therefore excluded from CKD analysis. For 271 of 833 patients (33%), the transition to chronic kidney disease has been observed. Further information on patient characteristics, underlying disease, transplant coordinates and related complications and relapse mortality are shown in Table 1.

CONCLUSION: AKI after SCT is the rule and not the exception. As the vast majority of patients show AKIN 1, it might be often clinically overlooked. However, early intervention might mitigate the development of long-term renal impairment. Automated detection (AKI alert systems) as well as identification and subsequent avoidance of factors contributing or aggravating injury (e.g. conditioning, immunosuppression, perfusion, tissue edema, inappropriate dosing of drugs) might minimize long-term renal complications in allogeneic SCT.