Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

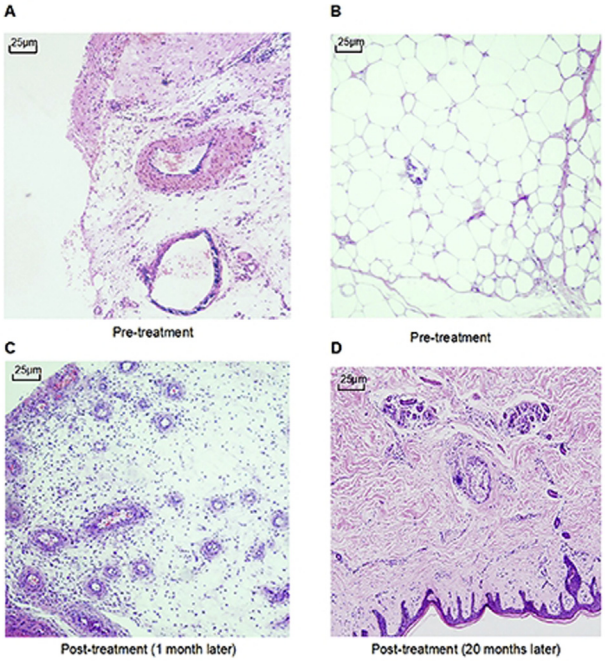

Fig 3. Skin pathology analysis during the course of hAMSC treatment in the uremic calciphylaxis patient.

Her blood-based markers of bone and mineral metabolism were improved, with more favorable profile of peripheral blood mononuclear cells (PBMCs) when followed up to 15 months. No infusion or local treatment related adverse events occurred.

Conclusions: These findingssuggest hAMSCs warrant further investigation as a potential regenerative treatment for uremic calciphylaxis with effects of inhibiting vascular calcification, stimulating angiogenesis and myogenesis, anti-inflammatory and immune modulation, multi-differentiation, re-epithelialization and restorage of integrity.

No conflict of interest

POSTER SESSION: COVID-19 AND AKI

POS29
24/02/2022
05:00 – 06:00

POS-839

CCOVID-19-ASSOCIATED VS. NON-COVID-19-ASSOCIATED ACUTE KIDNEY INJURY: A PROSPECTIVE, OBSERVATIONAL MULTI-CENTER STUDY

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Introduction: Acute kidney injury (AKI) is common in severe COVID-19, and is associated with high mortality. We examined several features of COVID-19-associated AKI and its outcomes and compared them with those of non-COVID-19-associated AKI.

Methods: Demographics, comorbidities, and treatment data as well as kidney and patient outcomes at four weeks from consultation for all nephrology consultations for AKI (associated with COVID-19 or not) in seven public hospitals in Kuwait, from 1/Jan to 30/Jun, 2021, were prospectively collected and analyzed.

Results: Total number of AKI referrals was 2048 (hospital-acquired: 80%; males: 58%; mean age: 64 years). Patients with a baseline eGFR of $<$ 60 comprised 43%. They were older than patients with an eGFR of $\geq$ 60 (mean age: 69 vs. 60), and their mean eGFR was 37 (vs. 89). IV fluids, and IV vasopressors were used more frequently in the eGFR $\geq$ 60 group. Mechanical ventilation was required for 42% (47% in the eGFR $\geq$ 60 group vs. 33% in the eGFR $<$ 60 group), and dialysis was needed for 34% (38% in the eGFR $\geq$ 60 group vs. 29% in the eGFR $<$ 60 group). Of patients dialyzed for volume overload, 62% received IV fluids. Of those who needed dialysis, 87% were on CKRT, and 73% were on mechanical ventilation (compared with 24% who did not need dialysis). At 30 days, 33.5% died (38% in the eGFR $\geq$ 60 group vs. 29% in the eGFR $<$ 60 group), and 35% had complete kidney recovery. Of those who required dialysis, 54% died while on dialysis, and 24% were alive and still on dialysis at 30 days. Of all AKI cases, 29% were COVID-19-associated (66% in the eGFR $\geq$ 60 group), representing 34% of AKI cases in the eGFR $\geq$ 60 group and 23% in the eGFR $<$ 60 group. Of COVID-19-associated AKI, 72% required intubation (vs. 28% of non-COVID-19-associated AKI), and 59% died (vs. 23% of non-COVID-19-associated AKI cases). Sepsis, diuretics, steroids, and mechanical ventilation were factors associated with higher rates of COVID-19-associated AKI. An age of $>$ 65 years, COVID-19, vasopressors, steroids, and mechanical ventilation were factors associated with higher rates of both mortality and lack of recovery. COVID-19, vasopressors, steroids, diuretics, and mechanical ventilation were factors associated with higher rates of dialysis. Of patients on CKRT, 39% did so due to lack of access to reverse osmosis, however, that did not alter survival or kidney recovery rates. Kuwaiti citizens represent one-third of the population; however, they represented 60% of all AKI cases. They also had higher rates of COVID-19-associated AKI but lower rates of dialysis need compared with non-Kuwaitis. More Kuwaitis were $>$ 65 years old, and after adjusting for age, Kuwaitis had higher rates of eGFR $<$ 60, DM, and HTN. No significant differences were observed in mortality and kidney recovery between Kuwaitis and non-Kuwaitis. Gender did not impact mortality, need for dialysis, or kidney recovery rates. Furthermore, no difference in mortality, need for dialysis, or kidney recovery rates were found between Kuwaiti females and non-Kuwaiti females. ACEIs/ARBs were not risk factors for mortality, need for dialysis, or lack of recovery (including from COVID-19-associated AKI).

Conclusions: AKI requires high usage of resources (ICU admission, mechanical ventilation, and acute dialysis) and is associated with high mortality rates. COVID-19 increases the risk of AKI, mechanical ventilation, dialysis, and mortality.

No conflict of interest

POS-840

ACUTE KIDNEY INJURY IN CRITICALLY ILL COVID- 19 INFECTED PATIENTS REQUIRING RENAL REPLACEMENT THERAPY

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Introduction: Acute kidney injury (AKI) is a common complication in patients infected with SARS COV-2. The incidence rates are very high (76%) in patients admitted in the intensive care unit. A high percentage of critically ill patients have severe acute kidney injury and require renal replacement therapy (RRT) with consequent high mortality.

Methods: The prospective study looks into the clinical presentation, laboratory parameters and therapeutic interventions in critically sick patients with AKI requiring RRT admitted in the intensive care unit of our hospital from April 2020 to December 2020. The demographic details, laboratory parameters , therapeutic interventions and outcome details were collected. Data was analyzed to detect significant patient variables which had an association with mortality. Initial chi- square test was performed to look at significant association. All significant variables were then included in a multivariate analysis. All statistical analyses were done using SPSS Version 21.

Results: A total of 632 critically ill patients were admitted in our ICU. Of these 144 (22.8%) had severe acute kidney injury requiring renal replacement therapy. In this subgroup majority (n=107,74.3%) were males. The mean($\pm$sd) age was 58.8($\pm$15.1) years. The majority of these patients presented with fever (51.4%) and breathlessness (73.6%). At the time of initiation of RRT , 128 patients were oliguric. There was a significant difference in hemoglobin (p=0.000), serum albumin (p=0.018) and LDH (p=0.000) levels between the survivors and non survivors. Echocardiography was done in 121 patients, of which 23(19%) showed evidence of regional wall motion abnormality. 48.5% were ventilated invasively and another 8.3% required non-invasive ventilation. The most common RRT modality in these patients was slow low efficiency daily dialysis (40.3%).Nobody was offered peritoneal

dialysis. 98(68%) of these patients died. The presence of diabetes mellitus was a poor prognostic indicator.(p=0.017) The clinical parameters associated with mortality were presentation with fever (p=0.04) and breathlessness (p=0.001). Patients on ventilatory support (p=0.00001) and RRT (p=0.00001) had a poorer prognosis. 91% of patients requiring both ventilation and RRT died (p=0.000001).

In a multiple regression analysis, older age and the presence regional wall motion abnormality were the only parameters predicting mortality. The type of RRT was not a significant parameter in predicting outcome. Regional wall motion abnormality in echocardiography may signify the presence of myocarditis in these COVID 19 infected patients.

Conclusions: Data from our center suggests a very high mortality in COVID 19 infected patients who develop acute kidney injury and undergo renal replacement therapy in the intensive care unit. A better understanding of the prognostic parameters will help us formulate interventions in these critically sick patients in a resource constrained setting.

No conflict of interest

POS-841

RISK FACTORS AND OUTCOMES ASSOCIATED WITH ACUTE KIDNEY INJURY IN HOSPITALISED COVID-19 PATIENTS

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Introduction: COVID-19 infection has been reported as a global pandemic with a variety of clinical spectrum including multiorgan involvement. AKI in hospitalized COVID-19 patients has been reported as high as 43 %. The pathophysiology of AKI in COVID-19 infection is multifactorial. AKI has been reported to be strongly associated with mortality of COVID-19 hospitalized patients.

Methods: This is an observational cohort study of 414 hospitalized COVID-19 patients from January to April 2021 at a tertiary center. Demographic, clinical, laboratory, management, and outcome data were recorded. Risk factors and outcomes associated with AKI analyzed by SPSS Version 26. Multivariate analysis was performed.

Results:

Table 1: Demography, laboratory investigations and COVID-19 Stages in non-Acute Kidney Injury and Acute Kidney Injury Patients

	No AKI n=298 (71.98%)	AKI n=116 (28%)	p-value
Age, mean (SD)	50.2 ± 15.9	57.4 ± 15.5	0.001
Gender, n (%)			0.001
Male	150(50.3)	82(70.7)	
Female	148(49.7)	34(29.3)	
Chronic kidney disease			<0.001
Lethargy / Fatigue	79(17.1)	46(17.2)	0.012
Anosmia / Ageusia	52(17.4)	11(9.5)	0.048
Covid-19 infection categories on admission, n (%)			
Category 4	117(39.3)	45(38.8)	<0.001
Category 5	11(3.7)	32(27.6)	
Laboratory investigations, median (IQR)			
Haemoglobin (g/dl)	13.2(11.8-14.7)	14(12.6-15.18)	0.003
White cell count (x 10^9 /L)	7.3(5.7-9.4)	8.3(6.13-11.98)	0.008
Absolute lymphocyte count (cells/uL)	1.44(1.038-2.005)	1.28(0.91-1.78)	0.016
Nadir Absolute lymphocyte count (cells/uL)	1.080(0.69-1.7)	0.66(0.37-1.01)	<0.001
Serum urea (mmol/L)	3.9(3-5.5	6.45(4.53-9.7)	<0.001
Serum creatinine peak (µmol/L)	80(69-100.25)	153.5(117-283)	<0.001
Serum sodium peak (mmol/L)	138(136-140)	141(138-146)	0.001
Serum potassium (mmol/L)	4(3.6-4.3)	4.3(3.9-4.9)	<0.001
Serum albumin(g/dl)	33(28-37)	31(25-34)	0.001
C-reactive protein peak (mg/L)	56.15(17.08-123.63)	131.25(75.45-216.8)	<0.001
D-dimer(µg/ml FEU)	1.42(0.74-2.75)	2.17(1.22-7.1)	0.007
Peak oxygen requirement,n(%)			<0.001
Mechanical ventilation	43(14.4)	59(50.9)	
Complications, n(%)			
Organizing pneumonia	40(13.4)	47(40.5)	<0.001
Pulmonary embolism	8(2.7)	16(13.8)	<0.001
Admission to ICU, n(%)	42(14.1)	60(51.7)	<0.001
Duration of hospitalization, days ,median (IQR)	8(5-10.25)	13(7.25-20)	<0.001
Discharge outcome, n(%)			<0.001
Alive	263(88.3)	80(69)	
Death	35(11.7)	36(31)	

This study included 298(72%) non-AKI and 116(28%) AKI patients. AKI patients were older (57.4 ± 15.7) years old and more of male n=82(70.7%) as compared to non-AKI. They comprised mostly of Malay ethnicity n=59(50.9%). 53.4%(n=62) AKI patients had hypertension, 43.1% (n= 59) diabetes mellitus and 5.2% (n= 6) CKD. Main presenting symptoms were cough n=82(70.7%), fever n= 74(63.8%), shortness of breath n= 65(56%) and lethargy n= 46(17.2%). Table 1 summarizes the comparison of baseline characteristics between the AKI and non-AKI groups that was of statistical significance. Haemoglobin, WBC, peak sodium and potassium were higher in AKI group. ALC and nadir ALC were lower. AKI patients had lower albumin. They had increased level of inflammatory marker, CRP and prothrombotic marker, D- dimer in patients with AKI.

The incidence of AKI KDIGO Stage 1 was 64(55.2%), stage 2 n= 18(15.5%) and stage 3 n= 34(29.3%). AKI patients were more ill with Category 5, needing mechanical ventilation and ICU admission. They were more complicated with organizing pneumonia and pulmonary embolism. AKI patients needing kidney replacement therapy were 16(13.8%).80(69%) AKI patients were alive and 36(31%) died. 63(78.8%) patients resulted in AKI resolution and 17(21.2%) unresolved; progressed to new CKD or worsening CKD. AKI patients experienced longer hospitalization and higher mortality rate. Based on AKI KDIGO staging, patients with AKI stage 3 had highest mortality rates n=17(50%) and longest hospitalization 16.44(7-24.25) days, $p<0.001$. They needed more mechanical ventilation 23(67.6%), p=0.047.Rate of AKI resolution was higher in AKI Stage I and 2 (n=47(73.4%); n= 9(50%). Progression to CKD was highest in AKI Stage 3(20.6%). Multivariate analysis revealed patients with higher haemoglobin level had a higher risk of developing AKI , RR= 1.659 (95% CI 1.2-2.4). Hyperkalaemia showed 2.5 times higher risk of AKI, RR= 2.543 (95% CI 1.0-6.4). Peak creatinine gives a higher risk of AKI RR=1.017(95% CI 1.004-1.030). Higher urea leads to AKI RR=1.357(95% CI 1.03-1.78).

Conclusions: This study demonstrates 28% incidence of AKI in COVID-19 patients. Kidney involvement was associated with poor prognosis; need of mechanical ventilation, ICU admission, in-hospital mortality and longer hospitalization. Early detection of AKI and prompt intervention may improve patient outcomes in COVID-19. Larger, multicentered studies are needed to obtain a better understanding of AKI for its prevention and management in COVID-19 patients.

No conflict of interest

POS-842

EXTRAPOLATION OF BURDEN OF ACUTE KIDNEY INJURY IN HOSPITALISED COVID-19 PATIENTS

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Introduction: COVID-19 infection is as a global pandemic which is associated with a variety of clinical spectrum including acute kidney injury (AKI). The devastating outcome of AKI in COVID-19 patients will lead to a new subgroup of population with kidney diseases. AKI also has been reported to be strongly associated with mortality of COVID-19 hospitalised patients.

Methods: This is an observational cohort study of 414 hospitalised COVID-19 patients from January to April 2021 at a tertiary centre. Demographic, clinical, laboratory, management, and outcome data were recorded. Risk factors and outcomes associated with AKI analysed by SPSS Version 26. Multivariate analysis was performed.

Results: This study included 298(72%) non-AKI and 116(28%) AKI patients. AKI patients were (57.4 ± 15.7) years old and more of male n=82(70.7%). They comprised mostly of Malay ethnicity n=59(50.9%). 53.4%(n=62) AKI patients had hypertension, 43.1% (n= 59) diabetes mellitus and 5.2% (n= 6) CKD. Among AKI patients, 80(69%) were alive and 36(31%) died. 63(78.8%) patients resulted in AKI resolution and 17(21.2%) unresolved (progressed to new CKD or worsening CKD). Table 1 summarizes the comparison of baseline characteristics between the unresolved AKI and resolved AKI groups that were of statistical significance. There were more male in the unresolved AKI group. They also had a higher percentage of pre-existing CKD. Both groups