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POSTER SESSION: ACUTE KIDNEY INJURY CLINICAL, DRUGS, AKI-CKD CONTINUUM

POS01

15/04/2021

Poster Area

05:00 – 06:00

POS-001

CONTINUOUS RENAL REPLACEMENT THERAPY IN CRITICAL PATIENTS WITH ACUTE KIDNEY INJURY

Akl, Al^{*1}, Ragab, M², Alobaidi, S³, Hammad, N⁴, Tashkandi, W⁴, Shaheen, F³

¹Dr. Soliman Fakeeh Hospital, IM/Adult Nephrology, Jeddah, Saudi Arabia, ²Dr. Soliman Fakeeh Hospital, Critical Care, Jeddah, Saudi Arabia, ³Dr. Soliman Fakeeh Hospital, Nephrology, Jeddah, Saudi Arabia, ⁴Dr. Soliman Fakeeh Hospital, Critical Care, Jeddah, Saudi Arabia

Introduction: In critically ill patients, septic shock is one of the major causes of acute kidney injury (AKI) in more than 40% of patients in the intensive care unit (ICU). About 70% of patients with AKI require renal replacement therapy (RRT), and in-hospital mortality is more than 60%. The initiation time of CRRT, The concept of 'optimal timing' in CRRT initiation has no clear consensus, and the terms 'early' and 'late' CRRT initiation are widely defined in previous studies; the development of clinical manifestations and complications of renal insufficiency, the requirement of inotropic drugs, and blood urea nitrogen (BUN) levels are indiscriminate in some patients.

Methods: We did a retrospective analysis of all patient admitted to ICU between 2018 to 2020 and suffered acute kidney injury requiring renal replacement therapy. We investigated the time from AKI onset to CRRT initiation influence on the survival of critically ill patients, The relationship between normalization of renal parameters by CRRT and critical patient outcome. We excluded individuals who had recovered kidney function or died shortly after CRRT initiation, as well as those who had only one CRRT session. A CRRT session was defined as an individual treatment with CRRT for at least a 24-hour period during which CRRT was prescribed. For each patient, we included up to the first three CRRT sessions. Our data included demographic information, the reason for ICU admission, and Charlson comorbidity scores on the day of CRRT initiation. Bloodwork was done on the day of admission to the hospital, transfer to ICU, and on the day of CRRT initiation. Systolic and diastolic blood pressure and vasopressor requirements. We compared continuous variables using analysis of variance and categorical variables compared using the Fisher exact test. We evaluated the relationship between CRRT modality (SLED vs CRRT) and hemodynamic instability using generalized estimating equations, in order to account for intra-patient clustering associated with the receipt of repeated CRRT sessions. Multivariable models were adjusted for age, gender, Charlson score, ICU type, SOFA score at CRRT initiation, baseline estimated GFR, and vasopressor requirement prior to CRRT initiation.

Results: We had 110 patients received 409 CRRT sessions, the patient started the CRRT in the first 6 hours post declaration of acute kidney injury performed in a better way for recovery compared to those that started late. Late initiation of CRRT associated with prolonged treatment time for than 72 hours. Mortality in ICU is multifactorial with poor correlation to the modality of CRRT. Serum and biomarkers and fluid balance constitute the most important landmarks for planning the duration of CRRT.

Conclusions: CRRT is essential in critical care management of patients with acute kidney injury, optimal initiation, and termination timing is critical for patient and kidney survival.

No conflict of interest

POS-002

ACUTE KIDNEY INJURY (AKI) IN RURAL WORKERS: SHOULD WE TALK ABOUT AGRICULTURAL NEPHROPATHY INSTEAD OF MESOAMERICAN NEPHROPATHY?

Aroca MD, G^{*1}, Musso, C², Avendaño, L³, Cadena Bonfanti, A⁴, Castillo, L³, Gonzalez, H⁵, Navarro quiroz, E³, Peña Vargas, W³, Sierra, A³, Palmera, J³, Velez verbel, M⁶, Rua, Z⁷, Terrasa, S⁸

¹Universidad Simón Bolívar, Medicine/Nephrology, Barranquilla, Colombia, ²Hospital Italiano, Research Department, Buenos Aires, Argentina, ³Simon Bolivar University, Nephrology, Barranquilla, Colombia, ⁴Simon Bolivar University-Clinica de La Costa, Nephrology, Barranquilla, Colombia, ⁵Simon Bolivar University, Estadistical, Barranquilla, Colombia, ⁶Clinica de la Costa, Nephrology, Barranquilla, Colombia, ⁷Simon Bolivar University, Medicine/rNephrology, Barranquilla, Colombia, ⁸Hospital Italiano, Research Department, Buenos Aires, Argentina

Introduction: Mesoamerican nephropathy (MN) is a chronic tubule-interstitial nephropathy, originally described in Central America, and whose etiology is still unknown. Among its many proposed inducing factors are severe dehydration, rhabdomyolysis, nephrotoxicity, chronic infections, genetic predisposition, etc. However, clinical cases similar to MN have been described in other geographically distant and ethnically diverse regions which have a common factor: the intensity of heat and rural physical labor. For this reason, we suggest the term "agricultural nephropathy" as more appropriate name for this condition. Then, it was decided to study whether this entity could occur among rural workers in a non Mesoamerican region but having similar climatic and working conditions, in the Colombian Caribbean countryside, and to consider how much repeated dehydration could weigh in its pathogenesis.

Methods: A descriptive, observational, crosssectional study was carried out, based on field work in a farm in Sitio Nuevo (Magdalena, Colombia) in 28 rural worker volunteers (rice fields), who were measured for weight, blood pressure, blood and urine samples to measure electrolytes and osmolality, at 2 times of the day (morning and evening)

Results: Of the 28 young men workers evaluated, 5 (18%) presented a significant increase in serum creatinine during the day (0.8 ± 0.15 vs 1.2 ± 0.17 , $p < 0.001$). The volume of water ingested by the workers was highly variable ($2,861 \pm 1,591$ cc). There was a significant increase in serum sodium ($p < 0.001$), and urinary osmolality ($p: 0.01$) values between morning and afternoon values in these 5 patients

Conclusions: Eighteen percent of the workers evaluated developed parameters compatible with AKI and dehydration during the work day in the Colombian Caribbean countryside

No conflict of interest

POS-003

ACUTE KIDNEY INJURY IN CRITICALLY ILL PATIENTS WITH COVID-19 EXPERIENCE OF A ICU BOLIVIAN CENTER REFERENCE

ARROCHA LUCANA, GG^{*1}, Casas, R¹¹North Hospital, El Alto, La Paz, Bolivia

Introduction: The outbreak of the coronavirus disease 2019 (COVID -19) has quickly turned into a global pandemic. The first confirmed case of COVID-19 infection in Bolivia was reported on March 10, 2020. Later, La Paz city became one of the most populations cities with cases in Bolivia, designating the North Hospital as the center reference for mild and severe cases.

Methods: All patients with confirmed COVID-19 infection admitted to the intensive care unit (ICU) of North Hospital (El Alto - Bolivia), a reference center of La Paz city with acute kidney injury (AKI), were studied from March to July 2020; The patients were classified into 2 groups: those who had AKI and those who did not have AKI. The data were obtained by reviewing the medical records and the SPSS22.0 package was applied for data analysis.

Results: Eighty-two patients admitted to the ICU were studied. The majority (60.9%) of the patients were men and 39% were women. Acute respiratory distress syndrome (SDRA) was documented in 98.7% of the patients, 68.2% required assisted mechanical ventilation, and 31.7% received non-invasive ventilation. 51 patients (62.1%) did not have AKI and 31 patients (37.8%) were classified according to KDIGO as stage 1 (51%), stage 2 (22.5%), stage 3 (24.8 %), with hemodialysis (HD) initiation criteria 29.03%. There was no difference in the age of presentation in both groups, the mean age being 54.8 ± 12.5 vs 58 ± 11.6 respectively. 64.7% of the group that did not undergo AKI died vs 90.3% of the group with AKI, obtaining an overall mortality of 74.39%.

Conclusions: The mortality of patients with critical illness associated with COVID-19 is high. Most of the patients develop SDRA that required mechanical ventilation and a significant percentage develop AKI, especially those with underlying comorbidities, being considered

an associated factor of mortality, especially when renal replacement therapy is required. The variation in mortality rates reported up to the date probably reflects the different clinical contexts in each country. More studies focusing on AKI in COVID-19 patients are urgently needed to predict AKI risk and identify the exact mechanisms of kidney injury to suggest future targeted interventions.

No conflict of interest

POS-004

HYPOALBUMINEMIA AND ACUTE KIDNEY INJURY IN PATIENTS ADMITTED TO INTENSIVE CARE UNIT



BACA, A*¹, Carmoma Antonio, M¹, Wasung, M¹, Visoso, P², Sebastian Alberto, M¹

¹Hospital Central Sur de Alta Especialidad, Nephrology, Mexico City, Mexico, ²Hospital Central Sur de Alta Especialidad, Intensive Care Unit, Mexico City, Mexico

Introduction: Acute kidney injury (AKI) is a disease of diverse etiology, consisting of a decrease in the glomerular filtration rate and therefore with the retention of waste products such as urea and creatinine, accompanied by fluid, electrolyte and acid-base disorders. It is present in 39.5% of the cases admitted to intensive care unit (ICU) in our hospital, it affects mainly men with infectious processes, impacting mortality. Hypoalbuminemia has been associated with positive fluid balances, however there are few studies that attempt to associate it with AKI.

Methods: Case-control study, including patients admitted to ICU at Hospital Central Sur de Alta Especialidad (HCSAE) in Mexico City with serum albumin determination at admittance. The cases were distributed into a control group (normoalbuminemia >3.5 g/dl) and the studied group (hypoalbuminemia <3.5 g/dl). Patients on hemodialysis, peritoneal dialysis, kidney transplant, burned patients, fed by parental nutrition, and patients with liver failure were excluded. Those patients who presented two AKI events in less than 7 days were eliminated.

Statistical analysis was carried out using SPSS software, version 20 (SPSS, Inc., Chicago, IL). A t-test and one-way ANOVA were used for analysis of normally distributed data. Categorical data were compared using a Pearson chi-squared test or Fisher's exact test. Data that were not normally distributed were analyzed using a Mann-Whitney U test, Wilcoxon signed-rank test, and Kruskal-Wallis test. Continuous variables were described using mean standard deviation or median with interquartile range (IQR). P values ≤ 0.05 were considered to represent statistically significant differences. The primary outcome was to determine whether hypoalbuminemia is associated with development of AKI in patients admitted to ICU.

Results: 197 patients were included, 174 in the group to study and 23 for the control group; men (51%), median age was 71 (+17.41) years. Mortality predominated in the study group with 160 (92%) vs 16 (69.6%) for the control (p <0.005). The outcome of AKI was more frequent in patients with hypoalbuminemia with 122 (70.1%) cases compared to the control (39.1%) and OR 3.01 [95% CI 1.48-8.9; p = 0.004], septic shock with was present in 54% in patients with hypoalbuminemia (p <0.0001). Hypoalbuminemic patients had higher amine requirements compared to the control group [132 (75.9%); p = 0.001].

Conclusions: The ratio in patients with acute kidney injury versus not AKI is 3.01 higher in patients with hypoalbuminemia.

No conflict of interest

POS-005

ACUTE KIDNEY INJURY IN CRITICALLY ILL COVID-19 PATIENTS ADMITTED AT A PRIVATE HOSPITAL



Bagha, H*¹, Ahmed, S¹, Gajjar, N¹, Bajaber, A¹

¹M.P Shah Hospital, Medicine, Nairobi, Kenya

Introduction: COVID-19 is an infectious disease caused by the novel coronavirus SARS-CoV-2. Most of the patients experience mild to moderate disease. It mainly affects the respiratory tract but other organs may be involved especially the kidney. The incidence of acute kidney injury (AKI) in patients with COVID-19 is not well described in Sub-Saharan Africa. We assessed the incidence and clinical characteristics of COVID-19 patients developing AKI in a critical care unit at a private hospital.

Methods: This was a retrospective observational survey of all patients admitted to the Critical Care Unit of a private hospital in Nairobi, Kenya, with laboratory confirmed COVID-19. The study period was from March to August 2020. Data regarding the clinical characteristics of patients, clinical course during admission and outcomes were obtained from the medical records. Acute kidney injury was defined as per the KDIGO clinical guidelines using serum creatinine and urine output.

Results: A total of 41 patients were admitted to the Critical Care Unit between March to August 2020. 10 (24.4%) patients developed acute kidney injury. 8 (80%) were males and 2 (20%) were females. The mean age of the patients who developed AKI was 57.7 years while the median age was 58.5 years. 6 (60%) of the patients who developed AKI were aged between 40 to 60 years while 4 (40%) of the patients were older than 60 years. Majority of the patients (90%) had pre-existing diabetes mellitus and systemic arterial hypertension. 4 (40%) of the patients with AKI required renal replacement therapy. 2 (20%) of the patients still required RRT on discharge. 7 (70%) patients had complete resolution of the acute kidney injury. The mortality was 50% (5 patients) in patients who had AKI.

Conclusions: The incidence of AKI is high in patients who developed critical COVID-19 disease. The mortality is significantly higher in COVID-19 patients who develop AKI compared to those who did not develop acute kidney injury. A large proportion of patients developing AKI require some form of RRT. Majority of the patients had complete resolution of the AKI.

No conflict of interest

POS-006

ACUTE KIDNEY INJURY AMONG CHILDREN WITH SICKLE CELL ANEMIA HOSPITALISED WITH VASO-OCLUSION IN UGANDA



BATTE, A*¹, Menon, S², John C, C³, Opoka Opika, R⁴, Senkusu M, J⁵, Kiguli, S⁴, Kalyesubula, R⁶, Conroy Leigh, A³

¹Makerere University College of Health Sciences, Child Health and Development Centre, Kampala, Uganda, ²University of California, School of Medicine, San Diego, United States, ³Indiana University School of Medicine, Department of Pediatrics Ryan White Center for Pediatric Infectious Disease and Global Health, Indianapolis, United States, ⁴Makerere University, Department of Paediatrics and Child Health, Kampala, Uganda, ⁵Makerere University, Department of Epidemiology and Biostatistics, Kampala, Uganda, ⁶Makerere University, Department of Physiology, Kampala, Uganda

Introduction: There are limited data on the epidemiology of acute kidney injury (AKI) in children with sickle cell anemia (SCA) from low-income settings. We evaluated the incidence and clinical correlates of AKI among Ugandan children hospitalised with vaso-occlusive crises (VOC).

Methods: We prospectively enrolled 185 Ugandan children with SCA 2 to 18 years of age admitted with VOC and age-matched controls in steady state. AKI was defined using the Kidney Disease: Improving Global Outcomes (KDIGO) guidelines. A large proportion of children had low creatinine levels most likely due to hyperfiltration, we thus defined AKI based on two approaches. The first approach (original-KDIGO) defined AKI based on a ≥1.5-fold change in creatinine within seven days or an absolute change of ≥ 0.3mg/dl within 48 hours. The second approach (modified-KDIGO) excluded children with creatinine 1.5-fold change of from 0.2mg/dL to 0.3mg/dL. Creatinine was measured using an enzymatic assay with amperometric detection using the handheld iSTAT blood analyzer and CHEM8+ cartridges.

Results: Using the original-KDIGO definition of AKI, 89 children (48.1%) had AKI over hospitalization with 71 cases (38.4%) present on admission, and 18 children (9.7%) developed incident AKI during hospitalization. Of those with AKI, 39 cases occurred in children with a baseline value of 0.2mg/dL with a 1.5-fold increase to 0.3m/dL. By the modified KDIGO-definition, 50 children (27.0%) had AKI over hospitalization with 40 cases (21.6%) present on admission, and 10 children (5.4%) developing incident AKI during hospitalization. We used serum Cystatin C as an alternative filtration biomarker to evaluate the original and modified-KDIGO approaches in diagnosis of AKI. Using the modified-KDIGO definition, Cystatin C had a higher area under receiver operating characteristic curve (AUROC) compared to the original-KDIGO definition for AKI suggesting better discrimination. The modified-KDIGO definition was associated with more pronounced proteinuria and elevated urine NGAL levels. Thus subsequent analyses were conducted using the modified definition. Using multivariable logistic regression analysis, independent risk factors for AKI were female