MO365

URINARY BIOMARKERS AND POOR OUTCOMES IN PATIENTS WITH COVID-19 ADMITTED TO A REFERENCE HOSPITAL IN NORTHEAST BRAZIL

Gdayllon Cavalcante Meneses[1], Gabriela Freire Bezerra[1], Lana Andrade Lucena Lima[1], Izabel Cristina Justino Bandeira[1], Nicole Coelho Lopes[1], Márcia Maria Pinheiro Dantas[2], Sandra Maria Brasileiro Mota[2], Polianna Lemos Moura Moreira Albuquerque[2,3], Alice Maria Costa Martins[1], Elizabeth De Francesco Daher[1], Geraldo Bezerra da Silva Junior[3]

[1]Federal University of Ceará, Fortaleza, Brazil, [2]Toxicological Assistance Center, Instituto Dr Jose Frota Hospital, Fortaleza, Brazil and [3]University of Fortaleza, Fortaleza, Brazil

BACKGROUND AND AIMS: Kidney biomarkers improve early and specific AKI detection and also poor outcomes in different clinical contexts. Kidney disease is an important risk factor for poor outcomes in COVID-19. The aim of this study was to evaluate association of early levels of kidney biomarkers with poor outcomes in hospitalized patients with COVID-19.
METHOD: This is a prospective study conducted at the Instituto Dr. Jose Frota Hospital, an important public reference hospital for COVID-19 in northeast Brazil. Medical records with clinical, epidemiologic, laboratory and outcomes were collected. The urinary NGAL, KIM-1, MCP-1 and nephrin were the kidney biomarkers quantified at hospital admission. ELISA assays were used for analysis and biomarkers urinary concentrations were adjusted for urinary creatinine. Data were expressed as mean± standard deviation or median.
RESULTS: A total of 69 patients collected urine and were included in this study. Male gender was predominant (65%) and mean age was 56±19 years. Regarding outcomes, the group had 62% of death, 92% of ICU admission and 65% of invasive respiratory support in ICU. Urinary NGAL and MCP-1 were significantly elevated in patients that needed invasive respiratory support in comparison with non-invasive support: uNGAL (median=104 [IQR=74-153] vs 71 [31-79] ng/mg-Cr, p=0.013), and uMCP-1 (3055 [1127-5008] vs 1315 [574-2127] pg/mg-Cr, p=0.027). Urinary nephrin and KIM-1 was also elevated, however with no statistical significance. Moreover, all urinary biomarkers were higher in ICU admission group and death group, but with p>0.05. In ROC curve analysis for prediction of invasive respiratory support, uNGAL had AUC=0.696 (0.565-0.827),p=0.012 and cut-off=78 ng/mg-Cr; uMCP-1 had AUC=0.676 (0.539-0.813), p=0.023 and cut-off=1354 pg/mg-Cr. In survival analysis, patients with uNGAL >78 ng/mg-Cr had worse prognosis and died more quickly (19 vs 48 days, log-rank test; p=0.01). In patients with uMCP-1 >1354 pg/mg-Cr, they also died more quickly, but with no significance (25 vs 48 days, log-rank test; p=0.08).
CONCLUSION: Urinary biomarkers NGAL and MCP-1 quantified at hospital admission were associated with poor outcomes, mostly with needed of invasive respiratory support in ICU. Prediction cut-off values for invasive respiratory support was useful to determine the survival prognosis.