

MO390

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

Hormat Rahimzadeh Eshkalak¹, Hossein Farrokhpour², Sina Kazemian², Maryam Rahbar³, Mahnaz Montazeri⁴, Samira Kafan⁵, Ahmad Salimzadeh⁶, Mohammad Talebpour⁷, Fazeleh Majidi⁸, Atefeh Gannatalipour⁹, Effat Razeghi^{10,11}

¹Tehran University of Medical Sciences, Tehran, Iran, Department of Nephrology Disease, Sina Hospital, Tehran, Iran, ²Tehran University of Medical Sciences, Tehran, Iran, Students' Scientific Research Center (SSRC), Tehran, Iran, ³Tehran University of Medical Sciences, Tehran, Iran, Department of Nephrology Disease, Tehran, Iran, ⁴Tehran University of Medical Sciences, Tehran, Iran, Department of Infectious Diseases, Tehran, Iran, ⁵Tehran University of Medical Sciences, Tehran, Iran, Department of Pulmonary Diseases, Tehran, Iran, ⁶Tehran University of Medical Sciences, Tehran, Iran, Rheumatology Research Center, Tehran, Iran, ⁷Tehran University of Medical Sciences, Tehran, Iran, Department of Surgery, Tehran, Iran, ⁸Tehran University of Medical Sciences, Tehran, Iran, Research Development Center, Tehran, Iran, ⁹Tehran University of Medical Sciences, Tehran, Iran, Research Development Center, ¹⁰Tehran University of Medical Sciences, Tehran, Iran, Nephrology Research Center, Center of Excellence in Nephrology, Tehran, Iran and ¹¹Tehran University of Medical Sciences, Tehran, Iran, Department of Nephrology Disease, Sina Hospital

BACKGROUND AND AIMS: Kidney involvement, ranging from mild hematuria and proteinuria to acute kidney injury (AKI) in patients with coronavirus disease-2019 (COVID-19), is a recent finding with various incidence rates reported among hospitalized patients with COVID-19. Current evidence on AKI rate in patients hospitalized with COVID-19 and its associated risk factors is limited, especially in Iran. **METHOD:** In this retrospective cohort study, we enrolled adult patients referred to the Sina hospital, Iran, from 20 February to 14 May 2020, with either a positive PCR test or a highly susceptible chest computed tomography features (CT) consistent with COVID-19 diagnosis. AKI was defined according to the kidney disease improving global outcomes (KDIGO) criteria, and patients were stratified based on their AKI staging. We evaluated the risk indicators associated with AKI during hospitalization besides in-hospital outcomes and recovery rate at the time of discharge. **RESULTS:** We evaluated 516 patients with a mean age of 57.6 ± 16.1 years and a male to female ratio of 1.69 who were admitted with the COVID-19 diagnosis. AKI development was observed among 194 (37.6%) patients, comprised of 61.9% patients in stage 1, 18.0% in stage 2, and 20.1% in stage 3. Out of all patients, AKI occurred in 58 (11.2%) patients during the hospital course, and 136 (26.3%) patients arrived with

AKI upon admission. AKI development was positively associated with all of the in-hospital outcomes, including intensive care unit admissions, need for invasive ventilation, acute respiratory distress syndrome (ARDS), acute cardiac injury, acute liver injury, multi-organ damage, and mortality. Patients with stage 3 AKI showed a significantly higher mortality rate, ARDS, and need for invasive ventilation than other stages. After multivariable analysis, male sex (odds ratio (OR):11.27), chronic kidney disease (OR: 6.89), history of hypertension (OR:1.69), disease severity (OR; 2.27), and high urea levels (OR: 1.04) on admission were independent risk indicators of AKI development. Among 117 (28.1%) patients who experienced AKI and survived, only 33 (28.2%) patients made a recovery from the AKI, and 84 (71.8%) patients did not exhibit full recovery at the time of discharge.

CONCLUSION: We found that male sex, history of chronic kidney disease, hypertension, disease severity, and high serum urea were independent risk factors associated with AKI in patients with COVID-19. Also, higher stages of AKI were associated with increased risk of mortality and in-hospital complications. Our results indicate a necessity for more precise care and monitoring for AKI during hospitalization in patients with COVID-19, and lack of AKI recovery at the time of discharge is a common complication in such patients.