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**EPIDEMIOLOGY AND CLINICAL RELEVANCE OF ACUTE KIDNEY INJURY IN KIDNEY TRANSPLANT RECIPIENTS**

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**BACKGROUND AND AIMS:** Very few information about COVID-19 in kidney transplant recipients (KTRs) are known and the available evidence are based on limited case series. In KTRs, Acute Kidney Injury (AKI) of different causes is known to be associated with a decreased graft survival: direct viral infection and local inflammation may potentially lead to a premature loss of graft function and to an increased risk of death in COVID-19 patients.

To evaluate prevalence, stage, causes of AKI and mortality in KTRs with a positive pharyngeal swab for SARS-CoV-2 in our transplant center located in a 500-bed University Hospital.

**METHOD:** In March-June 2020, we evaluated in 25 COVID-19 KTRs demographic and transplant characteristics, comorbidities, immunosuppressive therapies (IT). Patients were screened for type of symptoms, management of IT, complications and outcome. AKI was graded according to 2012 KDIGO guidelines and causes were investigated basing on both clinical and laboratory variables. AKI prevalence in KTRs was compared to that observed in the whole hospitalized COVID-19 patients.

**RESULTS:** During the first wave of pandemic, a total of 945 patients were admitted to our hospital with a reported AKI prevalence of 37%. AKI classified using 2012 KDIGO guidelines associated with an increased mortality risk in the whole population.

In this setting, we observed that 25 KTRs followed-up in our University Hospital had a positive molecular diagnosis for COVID-19: median age was 58 years and 80% were males. Considering the most frequent comorbidities, 100% of KTRs had hypertension and 7/25 (29%) had diabetes. Clinical symptoms at enrollment were fever (95%), cough (47%), dyspnea (30%). Regarding IT, 100% of patients were taking CNI, 64% antimetabolite agents and 76% steroids. Of note, 19/25 patients (76%) were hospitalized and 6/19 (31.5%) were admitted to Intensive Care Unit (ICU). Mean length of hospital stay was 23 days. At admission, all KTRs stopped MMF and increased steroid doses, concomitantly decreasing CNI levels.

AKI occurred in 60% of KTRs (12/25), AKI KDIGO grading as follow: stage 1 4/12 (33.3%), stage 2 3/12 (25%), stage 3 5/12 (41.7%); development favored by low eGFR/ increased serum creatinine (mean serum creatinine 2.06 mg/dl): 4/25 (16%) required hemodialysis and the most frequent cause of AKI was sepsis or septic shock. Overall mortality in KTRs was 37,5% (9/25): of note, 88% (8/9) of patients with a worse outcome had developed AKI.

**CONCLUSION:** AKI prevalence was significantly higher in KTRs than in non-transplanted COVID-19 patients. AKI development was associated with an increased risk of mortality: of note, mortality rate in KTRs was significantly higher than that observed in the non-transplanted patients. COVID-19 lead to a difficult management of IT, in particular for elevated tacrolimus levels due to associated antiviral and antibiotic therapies. COVID-19-associated AKI in KTRs may lead to an increased risk of rejection and premature loss of graft function with the need of skilled nephrological follow-up.