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COVID-19 RELATED MORTALITY IN KIDNEY TRANSPLANT AND DIALYSIS PATIENTS: A COMPARATIVE, PROSPECTIVE REGISTRY BASED STUDY

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BACKGROUND AND AIMS: Studies examining kidney failure patients with COVID-19 reported higher mortality in hemodialysis patients than in kidney transplant recipients. However, hemodialysis patients are often older and have more comorbidities. This study investigated the association of type of kidney replacement therapy with COVID-19 severity adjusting for differences in characteristics.

METHOD: Data were retrieved from the European Renal Association COVID-19 Database (ERACODA), which includes kidney replacement therapy patients diagnosed with COVID-19 from all over Europe. We included all kidney transplant recipients and hemodialysis patients who presented between February 1st and December 1st 2020 and had complete information reason for COVID-19 screening and vital status at day 28. The diagnosis of COVID-19 was made based on a PCR of a nasal or pharyngeal swab specimens and/or COVID-19 compatible findings on a lung CT scan. The association of kidney transplantation or hemodialysis with 28-day mortality was examined using Cox proportional-hazards regression models adjusted for age, sex, frailty and comorbidities. Additionally, this association was investigated in the subsets of patients that were screened because of symptoms or have had routine screening.

RESULTS: A total of 1,670 patients (496 functional kidney transplant recipients and 1,174 hemodialysis patients) were examined. 16.9% of kidney transplant recipients and 23.9% of hemodialysis patients died within 28 days of presentation. In an unadjusted model, the risk of 28-day mortality was 33% lower in kidney transplant recipients compared with hemodialysis patients (hazard ratio (HR): 0.67, 95% CI: 0.52, 0.85). However, in an age, sex and frailty adjusted model, the risk of 28-day mortality was 29% higher in kidney transplant recipients (HR=1.29, 95% CI: 1.00, 1.68), whereas in a fully adjusted model the risk was even 43% higher (HR=1.43, 95% CI: 1.06, 1.93). This association in patients who were screened because of symptoms (n=1,145) was similar (fully adjusted model HR=1.46, 95% CI: 1.05, 2.04). Results were similar when other endpoints were studied (e.g. risk for hospitalization, ICU admission or mortality beyond 28 days) as well as across subgroups. Only age was found to interact significantly, suggesting that the increased mortality risk associated with kidney transplantation was especially present in elderly subjects.

CONCLUSION: In this study, kidney transplant recipients had a greater risk of a more severe course of COVID-19 compared with hemodialysis patients when adjusted for age, sex and comorbidities.