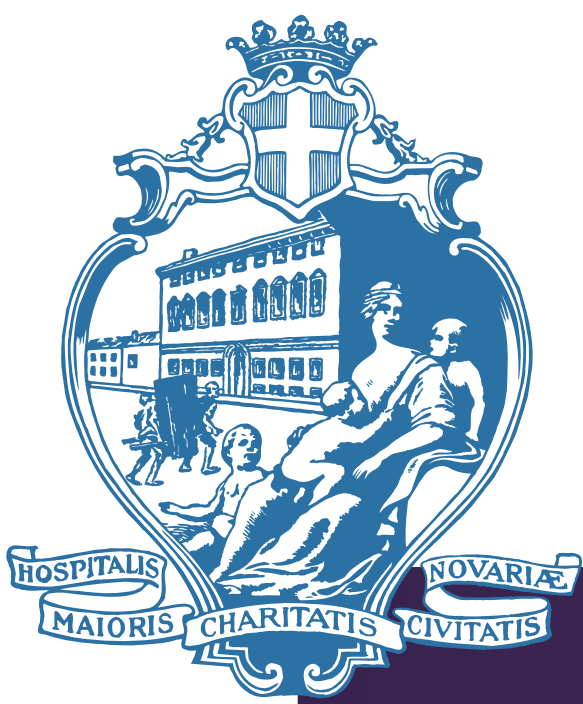




Incidence and Clinical Relevance of Acute Kidney Injury (AKI) in Hospitalized Renal Transplant Recipients: Correlation with Delayed Graft Function (DGF) and with Acceleration of Graft Failure

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Background

Kidney transplantation (KTx) is the best therapeutic option for patients with end-stage chronic kidney disease. However, several complications including Delayed Graft Function (DGF) and Acute Kidney Injury (AKI) accelerate graft failure because of the reduction of Renal Functional Reserve (RFR). Aim of the study: to evaluate incidence and clinical significance of AKI on KTx patient and graft survival.

Methods

Monocentric and retrospective study aimed to evaluate AKI in KTx patients admitted to our University Hospital (2019-2023). AKI was identified and graded according to KDIGO criteria based on serum creatinine levels and compared with the whole hospitalized population (n=94278). DGF was defined as the need for dialysis in the first week after KTx according to different donor, recipient and procurement variables

Results

The KTx cohort included 745/94278 hospital admissions (0.7%) with the following parameters: median age 55 years; males 65%; first KTx: 85%. According to KDIGO criteria, AKI was present in 199/745 KTx admissions (26.7%) and graded as follows: Stage 1: 146/199 (73.3%); Stage 2: 25/199 (14.6%); Stage 3: 24/199 (15.2%). AKI incidence in KTx was significantly higher than the whole hospitalized population (16.7%). However, the KTx cohort showed a higher incidence of Stage 1 and a lower incidence of Stage 2 - 3 AKI (AKI in all hospitalizations: Stage 1: 59.8%; Stage 2: 25%; Stage 3: 15.2%): these results suggest that despite the higher incidence of AKI in respect to the whole hospitalized population, the KTx cohort was characterized by most cases of mild forms, reflecting both the reduced RFR and the decreased admission to Intensive Care Unit. The main causes of AKI in KTx were bacterial and/or viral infections (29.3%), immunologic (23.4%) and obstructive/urologic (17.4%). Independently from the cause, AKI determined a significant reduction of both patient and graft survival in a follow-up of about 25 years. Of note, 16.1% of AKI KTx hospitalized patients previously developed DGF after transplant and DGF represented an independent risk factor for subsequent AKI episodes (HR 1.6). The KTx group with both DGF and subsequent AKI showed a worse patient and graft survival.

Conclusions

In KTx, AKI episodes during hospitalization are frequent and significantly contributed to a decreased patient and graft survival independently from the cause. The risk of AKI was higher in KTx patients who previously experienced DGF. AKI prevention during hospitalization and a strict follow-up after discharge are mandatory to manage immunosuppressive and nephroprotective therapies and to limit an accelerated graft senescence and failure.