

Abstract Type : Oral

Abstract Submission No. : 1523

Impact of deceased donor's acute kidney injury on graft survival: KONOS cohort

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Objectives: Donor organ shortage is a serious problem, especially in Asian countries with very long waiting time for deceased donor kidney transplantation (DDKT). To improve the problem of organ shortage, utilization of donor kidneys with acute kidney injury (AKI) have been tried. In this study we aimed to assess prognosis of DDKT that used kidneys with AKI.

Methods: We analyzed a Korean nationwide DDKT cohort, which includes adult, solitary KT patients from the Korean Network for Organ Sharing (KONOS). We also collected comorbid data from the National Health Insurance Data Sharing Service (NHISS). A total of 6,415 patients who received DDKT between 2008 and 2018, were analyzed. Donor AKI was defined as stage 1 to 3 according to AKI Network criteria. The primary outcome was kidney graft failure. Impact of AKI on primary outcomes was analyzed using the Cox regression analysis.

Results: Among 6,415 DDKT patients, no AKI group and AKI group included 3,172 (49.45%) and 3,243 (50.55%) patients. The AKI group had a higher risk for graft failure than no -AKI group (hazard ratio [HR] 1.199). When AKI subgroups were compared with no AKI group, AKI stage 2 and 3 showed a higher risk for graft failure (AKI stage 2: HR 1.255; AKI stage 3: HR 1.312). Furthermore, AKI had a higher risk for graft failure than no AKI in the subgroup of KDPI \geq 80, whereas AKI did not show a higher risk than no AKI in the subgroup of KDPI < 80. And, AKI showed a higher risk for graft failure in the stable-creatinine subgroup, whereas AKI did not in the decreasing-creatinine subgroup.

Conclusions: Overall, AKI group showed worse graft survival compared to no-AKI group. However, result of some subgroups showed comparable graft survival. Therefore, utilization of AKI kidneys with relatively good prognosis could contribute to overcoming organ shortage.

Table1. Impact of AKI or AKI stage on overall Graft-survival