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The impact of renal cortex volume to recipient body weight ratio on post-transplant allograft function

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Introduction: Functional nephron mass has been recognized as a crucial factor in post-transplant renal function as a non-immunological factor. CT-based renal cortex volume has been considered the most accurate surrogate for assessing functional nephron mass. This study is aimed to investigate the impact of the discrepancy between renal cortex volume and recipient body weight on post-transplant renal function.

Methods: We retrospectively investigated cases of adult live donor kidney transplantation between January 2016 and December 2019 at Dongsan Medical Center of Keimyung University in Korea. Renal cortex volume was measured based on preoperative abdominal computed tomography scans performed as part of the workup for live donors. Subsequently, an arithmetic ratio of renal cortex volume to recipient body weight was calculated. We analyzed the extent to which this ratio positively correlated with post-transplant estimated glomerular filtration rate.

Results: A total of 80 patients were included in this study. Recipients with high renal cortex volume to recipient body weight ratio (RCV/BW) showed a significantly high death-censored graft survival rate than patients with a low RCV/BW. And patients with high RCV/BW showed higher estimated glomerular filtration rate (eGFR) during post-transplant follow up period.

Conclusion: The RCV/BW is the independent determinant for post-transplant allograft function and death-censored graft survival.