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Post-Transplant Allograft Outcomes according to Mismatch between Donor Kidney Volume and Body Size of Recipients with Pre-Transplant Diabetes Mellitus

Yohan Park¹, Hanbi Lee², Sang Hun Eum², Hyung Duk Kim², Eun Jeong Ko², Chul Woo Yang², Byung Ha Chung²

¹Department of Internal Medicine-Nephrology, Konyang University Hospital, Korea, Republic of

²Department of Internal Medicine-Nephrology, The Catholic University of Korea, Seoul St. Mary's Hospital, Korea, Republic of

Objectives: The aim of this study was to investigate allograft outcomes when relatively small kidneys were donated to patients with pre-transplant diabetes mellitus (DM).

Methods: From January 2010 to December 2018, 788 cases of non-sensitized living donor kidney transplant recipient and donor pairs were enrolled. The subjects were divided into four groups according to the relative size of kidney and pre-transplant DM status: non-DM large kidney, non-DM small kidney, DM large kidney, and DM small kidney. We compared allograft outcomes between these four groups.

Results: The four groups did not show differences in the development of *de novo* donor-specific antibody and acute rejection. However, a significantly greater decline of allograft function and increased proteinuria were observed in the DM small kidney group than in the other groups. The highest death-censored graft loss (DCGL) rate ($P = 0.008$) was observed in this group and the combination of relatively small kidney size and pre-transplant DM was an independent risk factor for DCGL. In addition, the relatively small kidney and pre-transplant DM showed significant interaction with each other.

Conclusions: The mismatch between donated kidney volume and recipient body size should be considered in donor selection of patients with pre-transplant DM.