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Association of Pre-Kidney Donation Diastolic Hypertension with Early and Late Kidney Allograft Function: Time-Dependent Effect Analysis

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Objectives: Whether diastolic hypertension (DHTN) during pre-donation is associated with kidney function during short- and long-term post-donation is unknown. We aim to examine association between pre-donation DHTN and a decline in eGFR at different periods after donation.

Methods: A single center retrospective cohort study including consecutive living kidney donors with pre-donation 24-hour ambulatory blood pressure monitoring was conducted to examine association between pre-donation DHTN defined as overall DBP >80 mmHg and >35% drop in eGFR at 2-3 days, 1 week, 6 months, 1 year, and 2 years post-donation compared to the baseline pre-donation eGFR by multivariable Cox proportional hazard regression analysis with a time-dependent effect of the fixed baseline pre-donation DBP.

Results: Of all 14 patients, mean age±SD was 52.64±13.46 years old and 50% was female. Pre-donation DBP was 75.08±6.76 mmHg and eGFR was 93.39±14.62 ml/min/1.73 m². Mean eGFR declined 40.74±7.68%, 40.89±7.54%, 37.54±6.52%, 38.25±4.60%, and 35.28±9.41% at 2-3 days, 1 weeks, 6 months, 1 year, and 2 years post-donation, respectively (Figure 1 and 2). Compared to living donors without pre-donation DHTN, those with pre-donation DHTN had 1.8, 1.22, 4.37, and 1.45-times greater risk for dropped eGFR >35% from the baseline eGFR at 2-3 days, 1 weeks, 6 months, and 1 year (p 0.353, 0.759, 0.092, and 0.637, respectively); whereas the risk was 0.91 time lower at 2 years (p 0.923). After adjusted for age, gender, ethnicity, pre-donation body mass index, and pre-donation eGFR, pre-donation DHTN was associated with lower the risk of dropped eGFR at 1 week, 1 year, and 2 years, but the association remained non-statistically significant.

Conclusions: Although there is a trend of decline in eGFR post-donation in patients with pre-donation DHTN, this association may be resulted from confounding factors and change in eGFR post-donation overtime. Hypertension such as DHTN may not be only factor to exclude living kidney donor candidacy.

Figure 1

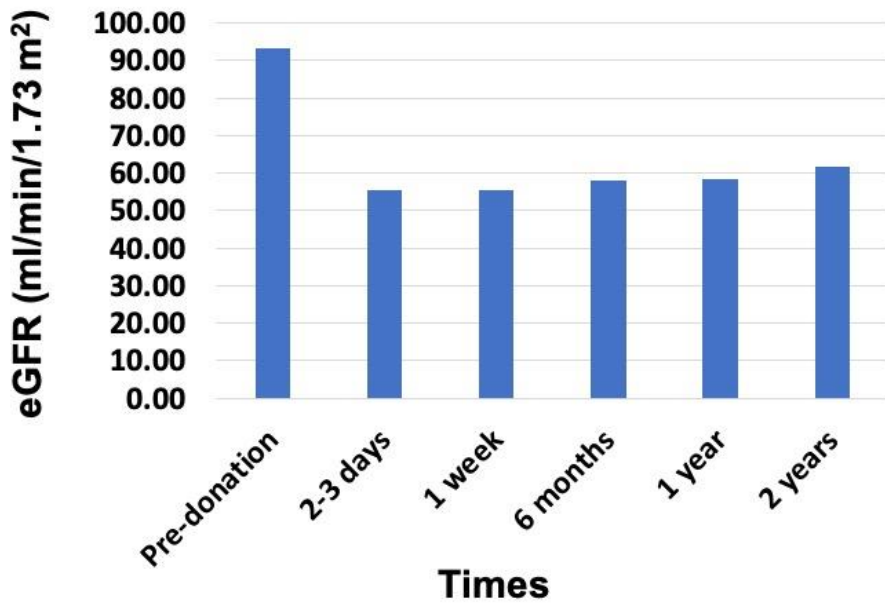


Figure 1: Distribution of mean eGFR during pre- and post-donation eGFR, estimated glomerular filtration rate

Figure 2

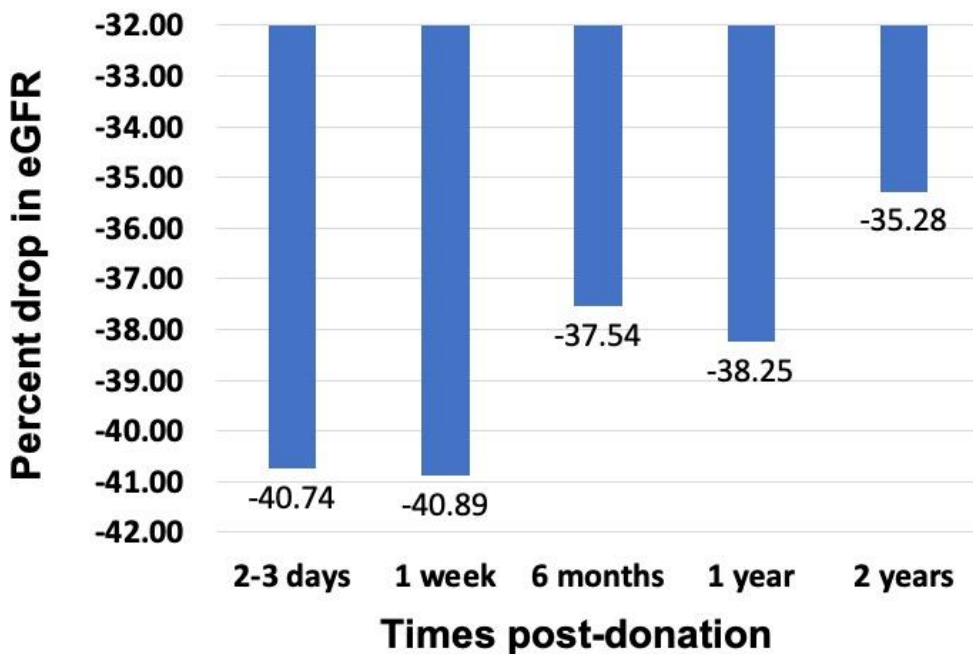


Figure 2: Distribution of decline in post-donation eGFR over time eGFR, estimated glomerular filtration rate