Rebound Weight Gain and Blood Pressure Control after Living Kidney Donation and Kidney Transplantation

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Objective: Overweight and obesity are known risk factors of hypertension in both donors and recipients after kidney donation and transplantation, respectively. We aim to study the correlation between blood pressure (BP) and body mass index (BMI) in donor post-donation and in recipients post-transplantation.

Methods: A consecutive 24 paired living kidney donors and recipients were reviewed. Demographic data, systolic blood pressure (SBP), diastolic blood pressure (DBP), and BMI were collected.

Results: Of all 24 donors and recipients, donors trends to be younger than their recipients (mean age 46.54±2.81 vs. 50.32±3.16 years old). Half of the donors and 54.17% (13/24) of the recipients were male. In donor group, mean SBP, but not DBP decreased overtime after donation (SBP 125.58±2.9 vs. 123.69±1.97; p=0.5924 vs. 121.33±3.02; p=0.3181. DBP 74.92±1.7 vs. 75.73±1.12; p=0.6926 vs. 76.85±1.82; p=0.4437). However, BMI decreased at 2-week post-donation, but rebounded above pre-donation BMI at 6 months (BMI 28.19±0.87 vs. 28±0.82; p=0.8750 vs. 28.92±1.03; p=0.5884) (Figure 1A). For recipient group, mean SBP, DBP, and BMI trended down after transplantation. However, these values increased to almost the same levels of pre-transplantation at 3-month post-transplant, and only DBP and BMI trended up beyond pre-transplant values at 6-month post-transplant (Figure 1B). Among 24 donors, 13 and 11 patients were living-related (LRD) and living unrelated donors (LUD), respectively. SBP, but not DBP continuously decreased in both LRD and LUD. Conversely, BMI was up trending in LRD, but decreased at 2-week post-donation, and then rebounded at 6-month (Figure 2A and 2B). Of all 24 recipients, 13 and 11 patients were living-related (LRR) and living unrelated renal transplant recipients (LUR), respectively. SBP, DBP, and BMI in LRR decreased until 1-month post-transplant and increased to above pre-transplant levels at 6-month post-transplant without statistical significance (Figure 2C). LUR group had the same patterns of SBP, DBP, and BMI, but SBP and DBP at 1-week and 1-month post-transplantation almost significantly decreased from the pre-transplant levels (Figure 2D).

Conclusion: BP and BMI in both donors and recipients seem to be positively correlated, and BMI rebounded beyond the pre-donation and pre-transplant levels. Early post-transplant SBP and DBP appear to be better improved in LUR than LRR group.

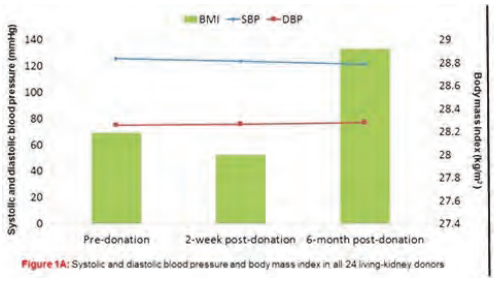

Figure 1A: Systolic and diastolic blood pressure and body mass index in all 24 living-kidney donors

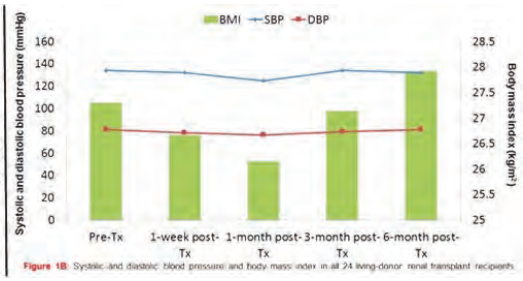

Figure 1B: Systolic and diastolic blood pressure and body mass index in all 24 living-donor renal transplant recipients

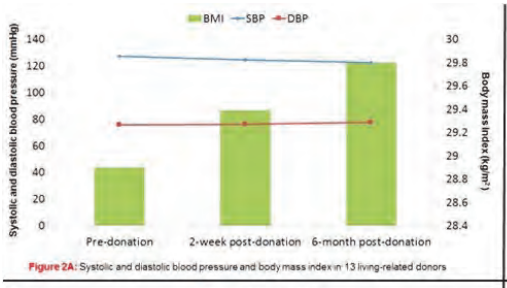

Figure 2A: Systolic and diastolic blood pressure and body mass index in 13 living-related donors

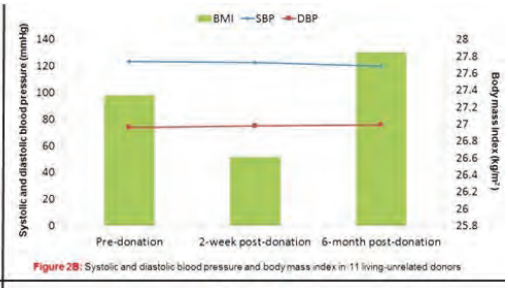

Figure 2B: Systolic and diastolic blood pressure and body mass index in 11 living-unrelated donors

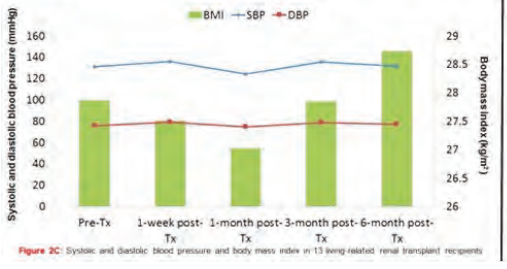

Figure 2C: Systolic and diastolic blood pressure and body mass index in 13 living-related renal transplant recipients

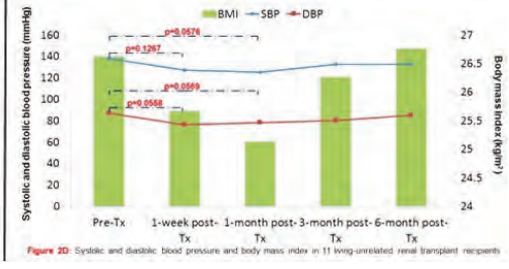

Figure 2D: Systolic and diastolic blood pressure and body mass index in 11 living-unrelated renal transplant recipients