Allograft and remnant kidneys display a difference in size 5 years after transplantation

Sir,

Studies comparing morphologic, physiological and clinical features of both the remnant kidney of kidney donors and their respective recipient have reported that renal volumes (RV) post transplantation were comparable both in the short and the long term[1] Herein, we report difference in kidney size in a black African population. Subjects were living kidney donors and their respective allograft recipients. Characteristics were compared between groups, particularly the RV (ml). The mean time after kidney donation was 5.58 years (2.64–6.67). All but one donors were female. All the recipients were male. The mean age of the subjects was 49 years (40.9–56.04), and recipients were significantly older (41.4 [34.1–49.0] vs. 55.5 [47.6–59.1] years $P < 0.006$). The mean arterial pressure (MAP) of the subjects was 105 (range 91.6–116.6) mm Hg. MAP was significantly higher in recipients (99.2 [86.6–108.7] mm Hg in donors vs. 116.6 [104.2–121.6] mm Hg in recipients $P < 0.04$). The mean GFR in the subjects was 55.8 (47–63.1) ml/min. There was no difference in GFR between groups (55.5 [45.5–61.8] ml/min in donors vs. 58.3 [49.2–67] ml/min $P < 0.37$). The mean urinary creatinine in subjects was 1740 (1554–2181.4) mg/24 h. There was a trend of urinary creatinine in recipients to be more elevated (1573 [1395–1943] in donors vs. 2043 [1718.5–3227] in recipients $P < 0.08$). The mean RV was 255.9 (196.2–352.5) ml. It was greater in recipients (199.4 [181–261.4] ml in donors vs. 331.3 [275.5–444.2] ml in recipients, $P < 0.016$) [Figure 1].

Despite the similar value of GFR in both groups, kidney length was more in recipients. Considering the GFR in donors as the baseline value, this increment in kidney size in recipients has not led to a significant increase in GFR. In fact, an increase in renal function can be suspected: as women have smaller kidneys,[2] the GFR would be expected to be low in recipients. If the renal function was somewhat similar in both groups, this may be the results of hyper-filtration[3] to adapt the small kidney of female donors to much larger male recipients.

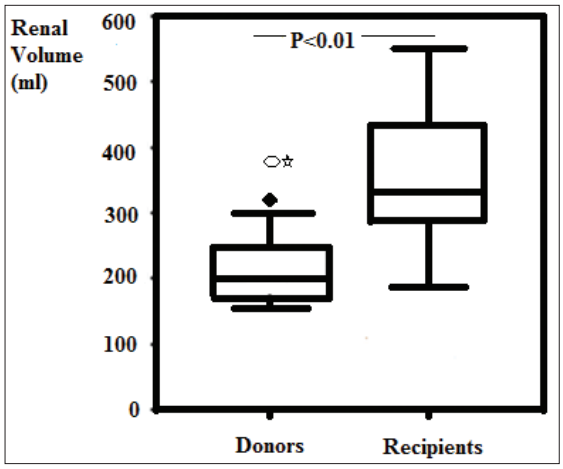

Figure 1: Renal volume in donors as compared to that of recipients 5 years after transplantation abroad

Since the baseline parameters were lacking in donors, it is hard to tell whether the kidney has increased in size and hyper-filtration has occurred. Since studies have reported that allograft and remnant kidneys show similar characteristics after transplantation,[4] discrepancies in the present study are difficult to substantiate. It appears likely that the change in the allograft volume must reflect more a pathological changes than the result of a mere hyper-filtration process. The increase in the allograft volume could be attributed to the process of chronic allograft nephropathy.[5]

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