

ABSTRACT

Context:

Renal transplantation is the golden method for management of end-stage renal disease. Impact of gender disparities on the outcome of renal transplants has been evaluated in many studies, but with debatable results. It has been suggested that female kidney donors have poor outcome after transplantation as compared with male kidney donors, especially when implanted in a male recipient.

Objective:

In many countries like our country, living donors are the only source for ESKD patients who need renal allografts. So, we tried to encourage living donation via answering the question, Are kidneys of female donors having inferiority to kidneys of male donors?

Design:

The data of 979 patients who underwent live donor kidney transplantation from January 2000 to December 2010 in a single center were reviewed retrospectively.

Setting:

The patients were divided into four groups according to recipient and donor gender: male donor-to-male recipient (MM; n = 307), male donor-to-female recipient (MF; n = 132), female donor-to-male recipient (FM; n = 411), and female donor-to-female recipient (FF; n = 129). We compared the demographic characteristics, post transplantation rejection and complications, graft and patient survivals among the groups.

Results

Female recipients (with female donors) were significantly younger than other groups. Female donors (female recipient) were older than other groups' donors (P < 0.001) (Table 1). The serum creatinine is correlated with donors' age more than with recipients' age (Figs. 1, 2). Despite the statistical significance of HLA variable, the multivariate analysis revealed that the degree of HLA mismatching did not have any significant impact on the graft survival among the groups (Table 1). No statistical significance regarding the recipient BMI, ischemia time and time to diuresis, acute and chronic rejection rates between the groups. Although donors BMI were statistically significant, the multivariate analysis did not shows any significant predictive factor on graft survival. (Table 1, 2). The male recipients suffered significantly from post transplantation hypertension (p=0.008) with no statistical significance regarding other post-transplant complications as diabetes mellitus, infection and malignancy (Table 3). There was no statistical significance regarding graft and patient survival between groups (P=0.947 and P=0.421 respectively) (Figs. 3, 4).

Conclusions:

There was no significant impact of donor gender on both the graft and patient survival (P=0.947 and P=0.421 respectively), donor age and BMI discrepancy were non-immunological factors that could have an important role in determining our results, so a prospective randomized studies are recommended to confirm this gender impact stressing on hormonal study.

RESULTS

Variable	Group 1 MM (n=307)	Group 2 MF (n=132)	Group 3 FM (n=411)	Group 4 FF (n=129)	P-value
Recipient age (M ± SD) years	31.89±10.7	28.48 ±10.7	28.84 ± 11.9	23.62 ±9.1	<0.001
Donor age (M ± SD) years	34.07±10.1	34.55 ±11.4	38.6 ± 9.5	40.47±10.6	<0.001
Recipient BMI (M ± SD) kg/m2	23.14±2.7	21.6±4.82	22.6±5.24	22.1±6.05	0.257
Donor BMI (M ± SD) kg/m2	26.8±4.48	26.7±4.36	30.3±5.59	31.3±5.46	<0.001
Consanguinity					
Related	256(83.38%)	94(71.21%)	345(83.94%)	123(95.34%)	<0.001
Unrelated	51(16.62%)	38(28.79%)	66(16.06%)	6(4.66%)	
HLA class I mismatching					
Zero mismatch	50(16.2%)	13(9.8%)	41(9.9%)	12(9.5%)	0.003
One mismatch	40(13.2%)	20(15.3%)	50(12.1%)	25(19.3%)	
Two mismatch	144(46.9%)	57(43.2%)	215(52.3%)	67(51.9%)	
Three mismatch	47(15.3%)	32(24.2%)	70(17.2%)	16(12.4%)	
Four mismatch	26(8.4%)	10(7.5%)	35(8.5%)	9 (6.9%)	
HLA class II (DR) mismatching					
Zero mismatch	75(24.4%)	24(18.1%)	55(13.5%)	26(20.1%)	0.026
One mismatch	232(75.6%)	108(81.9%)	353(85.8%)	103(79.9%)	
Two mismatch	0(0%)	0(0%)	3(0.7%)	0(0%)	
Ischemia time in minutes (M ± SD)	51.4± 15.6	51.6± 16.8	52.7± 14.6	51.8±14.7	0.704
Time to diuresis					
Immediate(<10minutes)	286(93.1%)	122(92.4%)	392(95.3%)	126(97.6%)	0.149
Delayed (> 10minutes)	21(6.9%)	10(7.6%)	19(4.7%)	3(2.4%)	

MM male donor-to-male recipient, MF male donor-to-female recipient, FM female donor-to-male recipient, and FF female donor-to-female recipient, BMI body mass index and M ± SD mean values ± standard deviation.

Type of acute rejection	Group 1 MM (n=307)	Group 2 MF (n=132)	Group 3 FM (n=411)	Group 4 FF (n=129)	P-value
No rejection	238(77.5%)	105(79.5%)	305(74.2%)	106(82.1%)	0.289
Hyperacute	1(0.4%)	0(0%)	5(1.2%)	1(0.7%)	
Acute cellular	56(18.2%)	22(16.8%)	88(21.4%)	15(11.6%)	
Acute humoral	12(3.9%)	5(3.7%)	13(3.2%)	7(5.6%)	

Variable	Group 1 MM (n=307)	Group 2 MF (n=132)	Group 3 FM (n=411)	Group 4 FF (n=129)	P-value
ATN	18(5.8%)	7(5.3%)	28(6.8%)	10(7.7%)	0.821
Bacterial infection	48(15.6%)	33(25%)	64(15.5%)	23(17.8%)	0.073
Hepatic impairment	42(13.6%)	22(16.6%)	61(14.8%)	17(13.1%)	0.829
Viral infection	44(14.3%)	22(16.6%)	71(17.2%)	23(17.8%)	0.708
Post transplantation hypertension	181(58.9%)	59(44.6%)	225(54.7%)	58(44.9%)	0.008
Diabetes Mellitus	21(6.8%)	10(7.5%)	25(6.1%)	5(3.8%)	0.605
Malignancy	6(1.9%)	10(7.5%)	7(1.7%)	0(0%)	0.375
Chronic rejection	36(11.7%)	15(11.3%)	45(10.9%)	10(7.7%)	0.667

ATN acute tubular necrosis.

Fig. (1) Correlation between age of recipient (years) and the mean serum creatinine after five years (mg/dl)

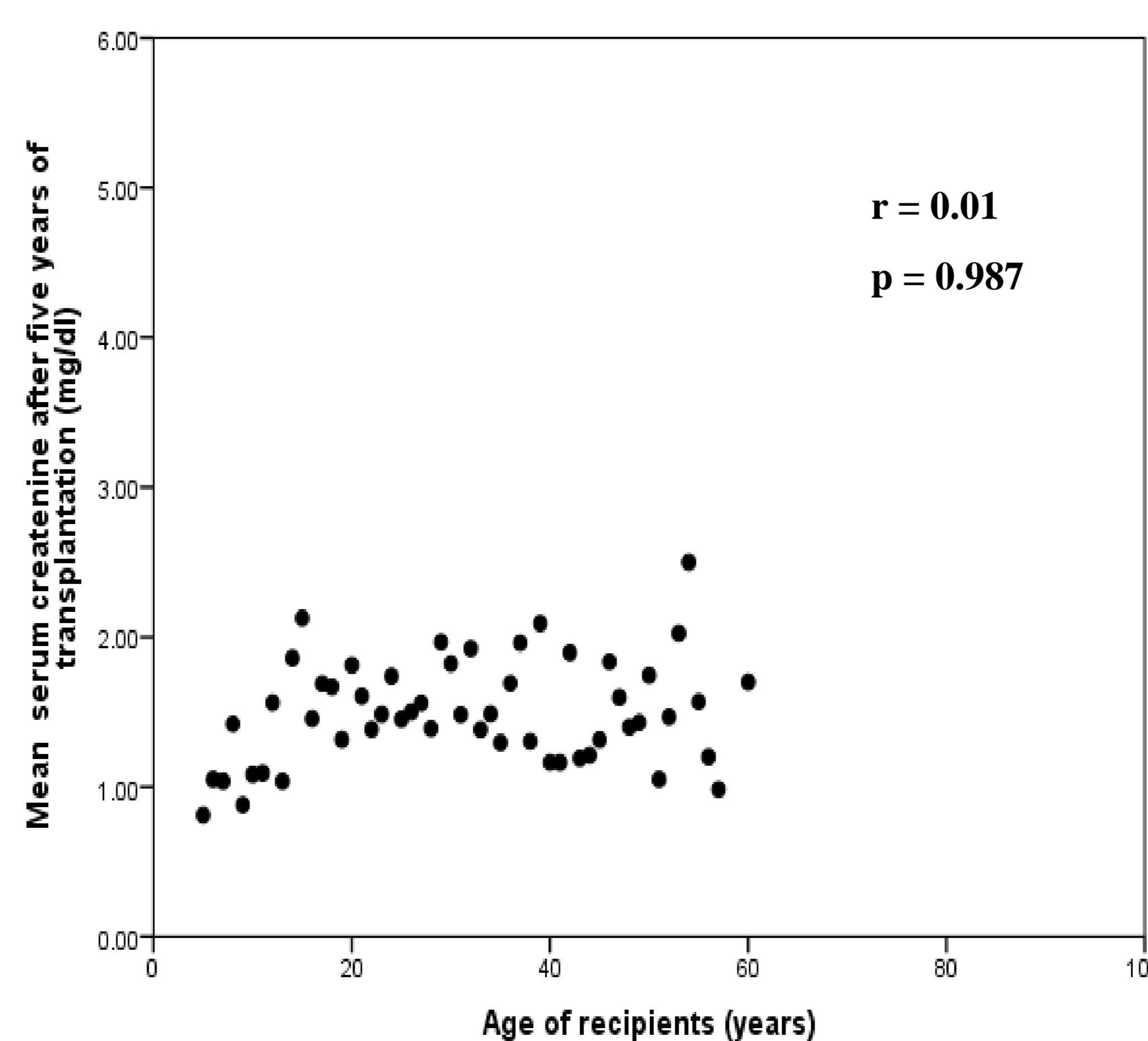


Fig. (2) Correlation between age of donor (years) and the mean serum creatinine after five years (mg/dl)

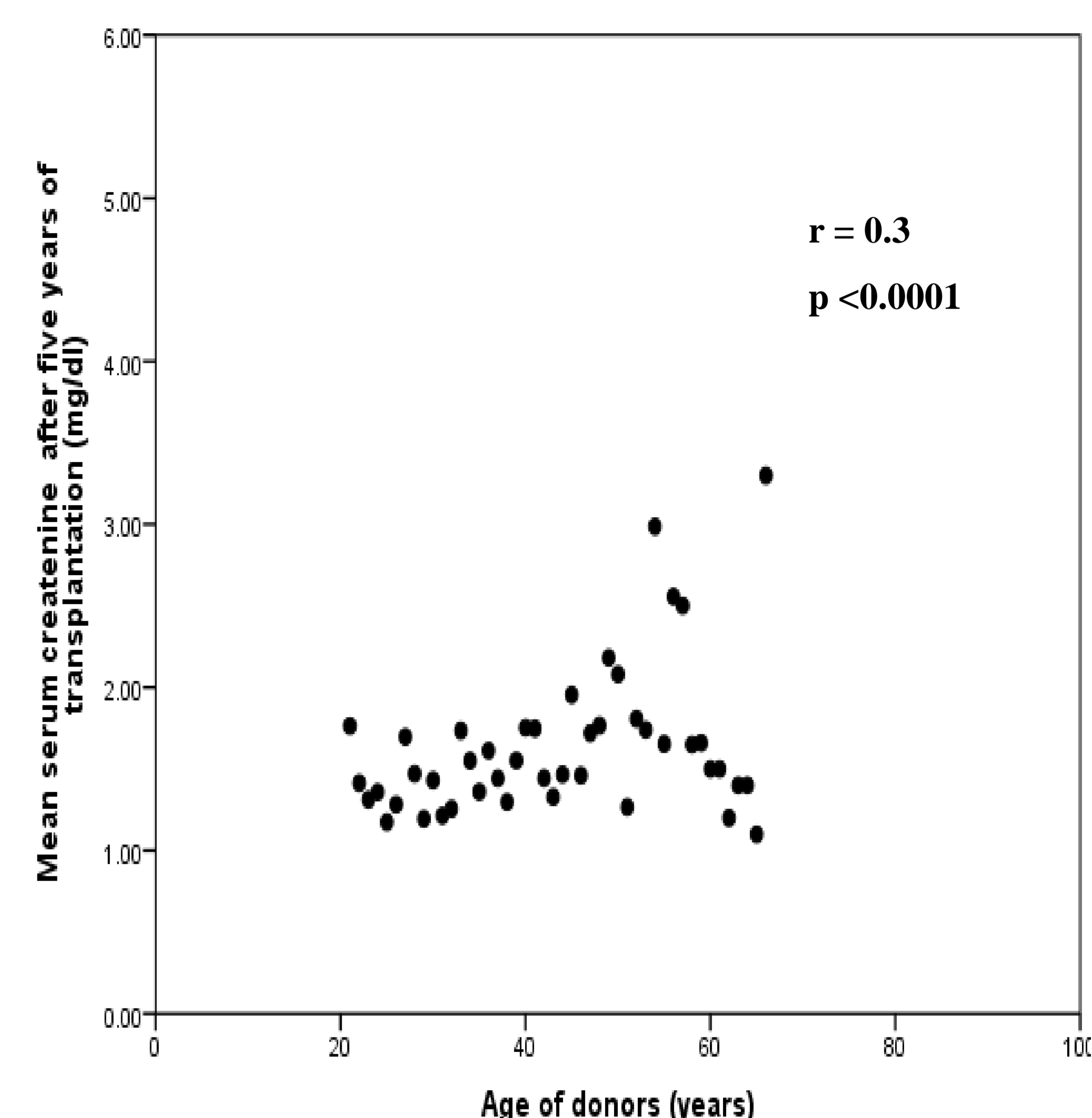


Fig. (3) Kaplan-Meier graft survival curve stratified by recipient-donor gender groups

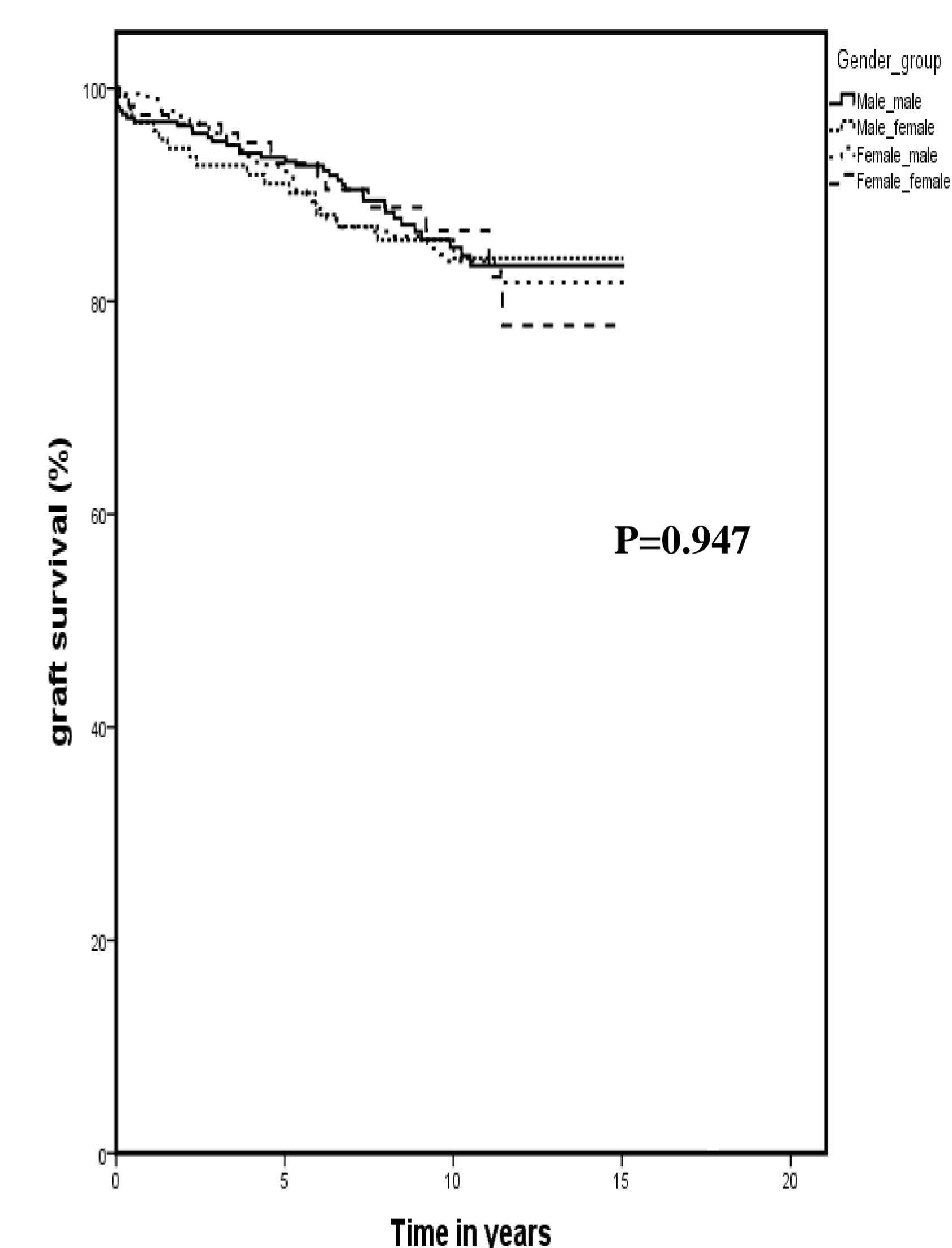


Fig. (4) Kaplan-Meier patient survival curve stratified by recipient-donor gender groups

