RISK FACTORS OF POSTTRANSPLANTATION GLOMERULONEPHRITIS AND EFFECTS ON GRAFT FUNCTIONS

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INTRODUCTION AND AIMS

Recurrent glomerulonephritis (GN) is the third most important cause of renal allograft loss at 10 years after transplantation (tx). The exact prevalence of either recurrent or de novo post-tx GN is unknown because a considerable number of patients never undergo allograft biopsy, meaning that GN remains undiagnosed and a diagnosis of 'chronic rejection/chronic allograft nephropathy' is sometimes presumed. The aim of this study is to evaluate the prevalence, risk factors, clinicopathological features, and effects on graft outcome of recurrent and de novo GN in renal allografts.

METHODS

In this study, a total of 866 renal tx recipents [516 (%59.6 male, mean age:34±12 year, living tx: 659 (76.1%)] who were on our clinical follow up for a mean duration of 82±66 months were evaluated. The impact of primary disease, transplant type, PRA, HLA mismatch, history of previous tx, transfusion, pregnancy, donor and recipient gender, age on occurrence of post-tx GN were analyzed using Cox regression (Fig. 1).

RESULTS

In the study group, 128 (14.8%) patients had chronic kidney disease as a result of biopsy-proven GN, with IgA nephropathy (IgAN) (n=36, 4.2%), FSGS (n=33, 3.8%), membranoproliferative GN (MPGN) (n=19, 2.2%) and being the most common histologic forms. Thirty three patients [living (n=25, 75.8%)] were diagnosed as biopsy confirmed post-tx GN [recurrence (n=26, 78.7%), de novo (n=7, 21.2%) after a mean time of 32 35 (1-160) months. Histologically, FSGS (n=19, 57.5%) was observed as the most common GN, followed by IgAN (n=10, 30.3%), MPGN (n=3, 9%) and membranous GN (n=1, 3%). The recurrence rates were as follows: FSGS (13/33, 39.4%), IgAN (9/36, 25%), MPGN (3/19, 15.8%) and membranous GN (1/7, 14.3%). All patients presented with renal dysfunction (median serum creatinine 2.8 mg/dL) and detectable proteinuria at the time of diagnosis. Post-tx GN and FSGS were significantly higher in males [26/33 (78.8%), p=0.02 and 17/19 (89.5%), p=0.007, respectively]. Follow-up data showed that 13 (39.3%) patients with post-tx GN [FSGS, 8/19 (42.1%); MPGN, 2/3 (66.7%), IgAN, 3/10 (30%)] had graft loss with dialysis-dependent state at last follow-up [median 42 (1-224) months]. Post-tx GN (HR:7.5, p<0.001) and FSGS (HR:11.5, p<0.001) were significantly found to be associated with graft failure in the Cox regression analyses (Fig. 2 and 3). Male transplant recipients have significantly higher risk for post-tx GN (HR: 6.3, p=0.04) and FSGS (HR:5.1, p=0.01).

Figure 1: Cox-regression analysis of overall graft survival and variables in the equation.

Variables in the Equation

	B	SE	Wald	df	Sig.	Exp(B)
PRALOWHIGH	-.521	1.130	.213	1	.645	.594
Mismatch	.183	.105	3.021	1	.082	1.201
BipsyprAMR	2.207	.278	62.864	1	.000	9.088
BiopsyprACR	.718	.339	4.489	1	.034	2.050
DonosexMM	-.081	.232	.122	1	.727	.922
RecipSEX	.227	.292	.605	1	.437	1.255
Historyoftx	1.371	.371	13.680	1	.000	3.939
Transfusion	1.001	.242	17.176	1	.000	2.722
Txtype	-.187	.268	.488	1	.485	.829
Pregnancy	.162	.333	.235	1	.628	1.175
PosttxGN	2.015	.522	14.926	1	.000	7.500
PostxFSGS	.511	.626	.666	1	.414	1.667

Figure 2: Cox-regression graft survival between patients with post-tx GN and control group (HR:7.5, p<0.001).

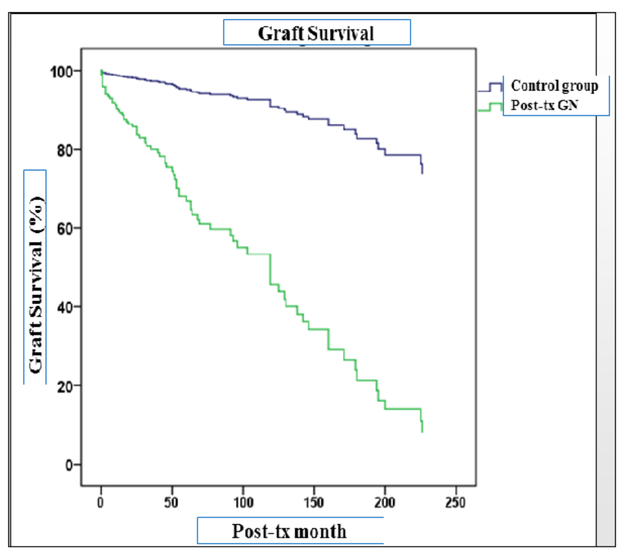
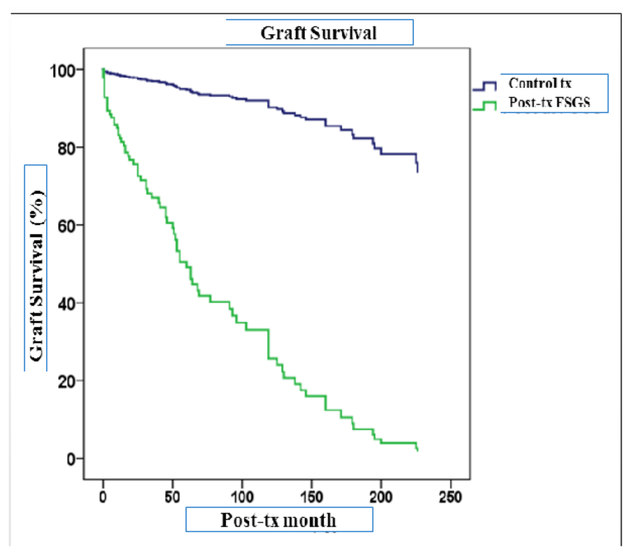


Figure 3: Cox-regression graft survival between patients with post-tx FSGS and control group (HR:11.5, p<0.001).



CONCLUSIONS

Post-tx GN and FSGS are important causes of graft dysfunction. Male tx patients have higher risk for post-tx GN compared to female recipients. The long-term outcome of renal allografts developing post-tx GN is quite dismal, with a significant proportion of patients suffering graft loss.

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