LONG-TERM KIDNEY ALLOGRAFT SURVIVAL IN PATIENTS WITH TRANSPLANT GLOMERULITIS

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OBJECTIVES

Kidney transplant glomerulitis (TG) is a morphological feature which is considered to be a sign of acute antibody-mediated rejection (AMR) when donor specific antibodies (DSA) are detectable [1, 5]. Cases of isolated TG (iTG) without the presence of DSA (iTG-DSA(-)) nowadays is not defined as a kidney allograft rejection [2, 3, 4]. The prognosis of TG is not well understood. The aim of our study is to determine the impact of TG, especially iTG-DSA(-), on kidney allograft survival.

METHODS

In this retrospective observational study we included 112 recipients with TG who were transplanted between 2001 and 2012. Patients (pts) were subdivided into 4 groups: a) iTG-DSA(-), N=36; b) TG accompanied by T-cell mediated rejection Banff IA/IB (TG-TCMR, N=31); c) TG in combination with vascular T-cell mediated rejection Banff IIA/II B (TG-TCMR-V, N=28); d) TG in acute AMR (TG-AMR, N=17) with HLA DSA (class I or II) proven by Luminex. As three control groups we enrolled: 1) 39 pts with TCMR without TG; 2) 27 pts with TCMR-V without TG, and 3) 92 pts without any rejection (no-rejection group - NR). All groups were comparable by age, gender, dialysis duration, HLA mismatch and donor age (Tab.1). Kaplan-Meier death-censored survival plots and Cox regression were used to analyse an effect of TG on long-term graft survival. Combined graft survival endpoint was defined as return to dialysis or doubling of serum creatinine (Cr). Median follow-up was 48 (IQR 18;82) months. All morphological changes were evaluated according to BANFF-1997-2011 criteria [6,7,8].

RESULTS

Figure 1

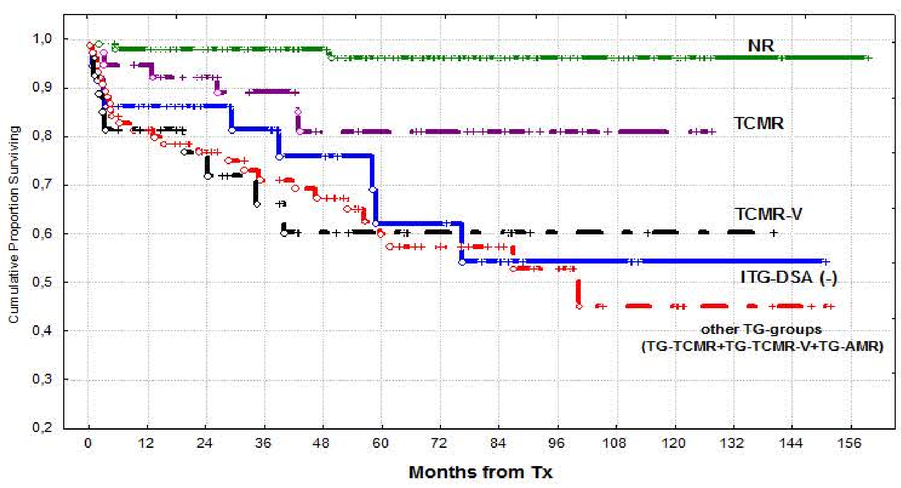

Figure 2

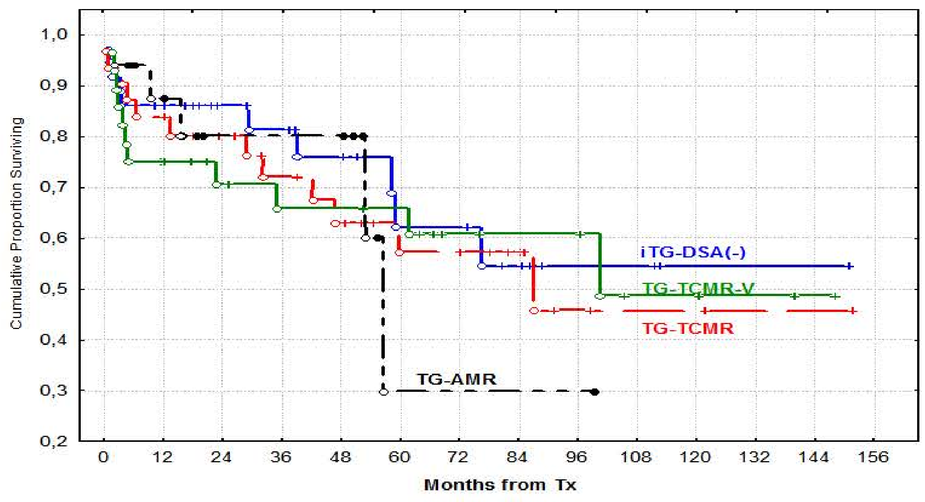

Table 1

Group	TG	iTG-DSA(-)	TG-TCMR	TG-TCMR-V	TG-AMR	NR	TCMR	TCMR-V
Pts Number	N=112	N=36	N=31	N=28	N=17	N=92	N=39	N=27
Male/Female	60/62	21/15	15/16	13/15	10/7	54/38	28/11	17/10
Cadaveric/live donor, %	79,5/20,5	78/22	87/13	71,4/28,6	82,4/17,6	82,6/17,4	60,7/39,3	92,6/7,4
Patient's age, years, mean±SD	46 ± 13	47 ± 13	46 ± 14	49 ± 14	43 ± 12	50 ± 12	48 ± 14	52 ± 11
RRT duration, months, mean±SD	96,5 ± 88,5	90,1 ± 83,3	86,7 ± 74,7	78,6 ± 64,4	157,7 ± 129,8	84,1 ± 76,1	79,5 ± 63,1	88,6 ± 50, 7
HLAmm A+B, median (IQR)	2 (IQR 1;2)	2 (IQR 1;2)	2 (IQR 1;3)	2 (IQR 1;2)	2 (IQR 1;2)	1 (IQR 0;2)	1 (IQR 0;2)	2 (IQR 1;3)
HLAmm DR, median (IQR)	1 (IQR 0;1)	1 (IQR 0;1)	1 (IQR 1;1)	1 (IQR 1;1)	1 (IQR 1;1)	1 (IQR 0;1)	1 (IQR 0;1)	1 (IQR 1;1)
HLAmm total, median (IQR)	3 (IQR 2;3)	2 (IQR 1;3)	3 (IQR 2;4)	3 (IQR 2;3)	3 (IQR 2;3)	2 (IQR 1;3)	3 (IQR 0;3)	2 (IQR 2;3)
Cold ischemia time, min, mean±SD	715 ± 402	676 ± 366	780 ± 417	700 ± 464	695 ± 353	665 ± 328	725 ± 322	838 ± 386
Warm ischemia time, min, mean±SD	40 ± 19	37 ± 10	49 ± 31	34 ± 7	43 ±16	38 ± 12	40 ± 10	40 ± 12
Last Donor Cr, mg/dl, mean±SD	0,95 ± 0,47	0,84 ± 0,38	0,98 ± 0,48	1,11 ± 0,57	0,91 ± 0,36	1,02 ± 0,55	1,13 ± 0,93	1,21± 0,86
Donor Age, years, mean±SD	49 ± 14	50 ± 14	49 ± 15	53 ± 14	44 ± 16	55 ± 14	51 ± 18	52 ± 15

Graft survival in all TG groups was significantly lower than in TCMR and NR groups and was similar to TCMR-V group. We did not find any significant difference in graft survival between iTG-DSA(-), TG-TCMR, TG-TCMR-V and TG-AMR groups (Fig.2). Noteworthy, graft survival in iTG-DSA(-) vs combined group of TG (TG-TCMR+TG-TCMR-V+TG-AMR) was similarly low (Fig.1). There was no significant difference in graft survival in iTG-DSA (-) and TG-AMR groups. The presence of TG was independently associated with increased risk of graft loss (Exp(B)=2,95; 95% CI 1,57 – 5,56; p<0,001) or combined endpoint (Exp(B)=3,71; 95% CI 2,10 – 6,56; p<0,001) in multivariate Cox regression model adjusted for other potential confounders: recipient age, gender, PRA level, HLA miss-match, dialysis duration, delayed graft function, cold and warm ischemia time, donor age, last donor Cr, Cr at the time of allograft biopsy and rejection type.

CONCLUSIONS

- iTG-DSA(-) does not fit Banff criteria for any rejection type, however, has a worse prognosis comparing with NR and even TCMR.
- The long-term graft survival in iTG-DSA(-) patients is comparable to TG-AMR and TCMR-V groups.
- Transplant glomerulitis is strongly and independently associated with lower long-term kidney allograft survival

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