American Transplant Congress
May 31 – June 4, 2008

Abstract Title: Impact of Kidney Dysfunction with HLA class II Donor Specific Antibody (DSA) on Graft Survival

Yong W Cho, PhD[1,2], James Cicciarelli, PhD[1,2], Michael Koss, MD[1,2], Kathryn Houston, MS[1], Robert Mendez, MD[1,2], Ian V Hutchinson, PhD, DSc[1,2] and Tariq Shah, MD[1,2]. [1]National Institute of Transplantation, Los Angeles, CA, United States; [2]USC School of Medicine, Los Angeles, CA, United States and [3]United States.

Body: Despite improved early graft survival long-term graft loss rate hasn t been reduced. Both HLA antibodies and HLA donor specific antibodies (DSA) have been shown and causal in acute and chronic allograft nephropathy (CAN) particularly the former. In a longitudinal study, HLA antibodies were linked to graft failure. Recently, Class II DSA has been shown correlated to renal graft failure with graft surviving at least one year.
Materials and Methods: Longitudinal studies were conducted during Sep 2004-Aug 2007 for HLA antibody tests using the luminex laboratory screen assay system for 351 kidney transplant recipients. Among them, 72 recipients with transplant dysfunction after the first year post-transplant were identified and followed for at least 6 months after HLA antibody test. All patients had at least one year of functioning graft and lowest serum creatinine (SCr) $\leq$ 2.0 mg/dl. Solid phase bead analysis was used to test for DSA.
Results: Fifty two recipients (72%) with transplant dysfunction had HLA antibodies and 43 (60%) had DSA. Only one out of 20 patients without antibodies rejected a graft compared with 12 out of 43 with post-transplant DSA (P=0.04) and 2 out of 9 with non-donor specific antibodies (NDSA) (P=0.16). Fractions of

graft failures among patients with class II antibodies (Class II only, I II, II, DR, and DQ) were statistically significantly higher than that of patients without post-transplant HLA antibodies (table).

Outcomes of recipients with transplant dysfunction and DSA					
HLA Ab Category	N	Graft Failure N (%)	P value	Current SCr 4.0 or Graft Failures	P value
No Ab (ref)	20	1 (5%)	(ref)	7 (35%)	(ref)
Non DSA	9	2 (22%)	0.16	3 (33%)	0.93
Class I only	13	2 (15%)	0.31	6 (46%)	0.52

Class II only	23	7 (30%)	0.03	16 (57%)	0.06
Class I & II	7	3 (43%)	0.02	5 (71%)	0.10
Class I	30	10 (33%)	0.02	22 (60%)	0.08
DR	24	9 (38%)	0.01	14 (58%)	0.12
DQ	13	5 (39%)	0.02	8 (62%)	0.14

Conclusions: Significant association between post-transplant HLA Class II antibodies and graft failure strongly suggests the importance of post-transplant monitoring of HLA antibodies. We postulate amelioration of CAN graft loss depends on DSA identification and successful immunosuppressive treatment of DSA.