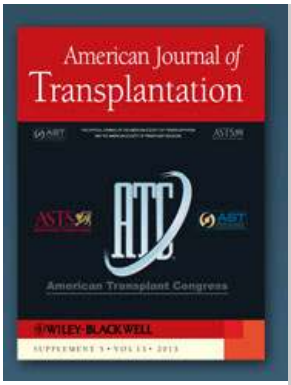
American Transplant Congress
MEETING ABSTRACTS



2013 ATC Abstracts

Multicenter Valdiation of Urinary Biomarkers in Kidney Transplantation: Urinary CXCL9 Protein Correlates with Acute Rejection and Deterioration of Kidney Function

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Noninvasive biomarkers to diagnose and/or predict outcomes in kidney transplant recipients are needed to assess post-transplant risk and ultimately to guide management of immunosuppression. Results from single center studies suggest that several individual urinary biomarkers could be useful for these purposes, but multicenter validation studies are lacking. The Clinical Trials in Organ Transplantation-01 protocol is a multicenter observational study of 280 adult and pediatric, non-sensitized, primary kidney transplant recipients (69% living donor, 29% African American recipients, mean PRA 12.9%). We tested the utility of multiple urinary mRNAs (CCR5, CCL5, IL8, Perforin, Granzyme B, CXCR3, CXCL10, CCR1, CXCL9) and proteins (CXCL9 and CXCL10) as biomarkers to diagnose biopsy proven acute rejection (AR) and to

identify individuals most likely to develop a 30% decrement in estimated glomerular filtration rate (eGFR) between 6 and 24 months after transplant. Among markers tested, the diagnostic utility of urinary CXCL9 mRNA (OR 3.28, sensitivity 70%, specificity 81%) and CXCL9 protein (OR 2.62, sensitivity 72.7%, specificity 76.8%) were the most robust. Compared to controls with no AR on for-cause biopsies, CXCL9 protein was significantly elevated as long as 30 days before AR became clinically overt. CXCL9 protein measured in urine samples obtained at 6 months after transplant correlated with unsuspected tubulointerstitial inflammation on protocol biopsies and differentiated individuals most likely to maintain stable kidney function from those most likely to develop a 30% decrease in eGFR between 6-24 months ($p<0.002$, negative predictive value 92.5%).The findings support the use of urinary CXCL9 protein measurements as a clinically useful biomarker to guide therapeutic decision-making following kidney transplantation.

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