Distribution of gfr_change by diagnew

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	140	5639	1.46	0.0007

Table 1. Multivariable linear regression results for the association between patient demographics, clinical characteristics and the outcome of change in GFR between listing and transplant, among a sample of heart transplant recipients between July 2006 and September 2010.

	Parameter Estimate (95% Confidence Interval or Standard Error)	P-value
Diabetes		
Yes	-0.82 (0.82)	0.3217
No	1.00 (Reference)	
Diagnosis		
Acquired conditions*	1.00 (Reference)	
Congenital heart disease	-0.02 (2.26)	0.9939

Age at Listing (years)	-0.09 (0.03)	0.0025
Body Mass Index at Listing (kg/m^2)	-0.18 (0.07)	0.0091
Race/Ethnicity		
White	1.00 (Reference)	
Black/African American	-1.12 (0.87)	0.1986
Hispanic	-1.34 (1.26)	0.2869
Sex		
Male	1.00 (Reference)	
Female	-0.46 (0.80)	0.5646

*Acquired conditions include cardiomyopathy, ischemic, hypertrophic, restrictive and valvular diagnoses. Reference groups for categorical variables are: no diabetes, diagnosis of acquired conditions, White race/ethnicity, and male sex.

Table 2. Odds ratios (95% confidence intervals) for the association between clinical and demographic characteristics, donor factors, and transplant center volume and the outcome of survival to discharge from multivariable logistic regression.

	Odds Ratio (95% Confidence Interval)	P-value
Diabetes		
No	1.00 (Reference)	
Yes	0.90 (0.68, 1.19)	0.4466
Diagnosis		
Acquired conditions*	1.00 (Reference)	
Congenital heart disease	6.15 (3.70, 10.23)	<0.0001
Age at Listing (years)	1.03 (1.02, 1.04)	<0.0001
Body Mass Index at Listing (kg/m^2)	1.01 (0.99, 1.03)	0.4979
Race/Ethnicity		
White	1.00 (Reference)	
Black/African American	1.40 (1.05, 1.86)	0.0086
Hispanic	0.76 (0.46, 1.27)	0.0898
Sex		
Male	1.00 (Reference)	
Female	1.01 (0.77, 1.34)	0.9246

Sex Mismatch		
Yes	1.00 (Reference)	
No	1.31 (1.01, 1.69)	0.0423
Donor Age (years)	1.02 (1.01, 1.03)	<0.0001
Center Volume	1.000 (0.998, 1.001)	0.4389

*Acquired conditions include cardiomyopathy, ischemic, hypertrophic, restrictive and valvular diagnoses. Reference groups for categorical variables are: no diabetes, diagnosis of acquired conditions, White race/ethnicity, male sex, and yes sex mismatch.

A two-sample t test was performed to examine the association between change in GFR and diagnosis. The t-statistic, degrees of freedom, and p-value were obtained. The mean difference came out with a 95% confidence interval. A test for equality of variances was done before the actual analysis of association. Boxplots of two groups and a p-value were produced. Then, a Chi square test was performed to determine the association between diagnosis and diabetes. The degree of freedom, Chi-square, $p<0.0001$, and an odds comparison were obtained. Whether diagnosis was a potential confounder was decided based on these results. ANCOVA was used to examine the association between the exposure variables diabetes, diagnosis, age at listing, BMI at listing, race/ethnicity, recipient's sex, and the outcome of change in GFR. Parameter estimates, standard errors, and p-values were obtained.

To examine the association between transplant center volume and survival to discharge while adjusting for clinical and demographic characteristics and donor factors, multivariable logistic regression was performed. Odds ratio with 95% confidence interval and p-values were obtained. To figure out whether donor sex mismatch was an effect modifier of the association between diabetes and survival to discharge while adjusting for all significant exposure variables, a test for interaction was performed. A t-value, degrees of freedom, a p-value were, and R square were obtained.

There is no significant evidence that the mean change of glomerular filtration rate of patients with congenital heart disease is different from the mean change of glomerular filtration rate of patients with other diagnoses. There is significant evidence that diagnosis and diabetes are not independent, and the estimated odds of diabetes for patients of other diagnoses is 5.81 times the odds of diabetes for patients of congenital heart disease. Therefore, diagnosis is not a potential confounder of the relationship between diabetes and change in GFR. There is a significant association between age at listing, body mass index, and change in GFR.

Diagnosis, age at listing, sex mismatch, donor age, Black/African American vs. White for race/ethnicity show a statistically significant association with survival to hospital discharge

following a heart transplant. Sex mismatch is not an effect modifier of the association between diabetes and survival to discharge, and that 1.55% of whether survival to discharge or not is accounted for by the combination of sex mismatch and diabetes.

Overall, both diagnosis and sex mismatch do not potentially influence the results of the study. In addition, age at listing is both associated with change in GFR and survival to hospital discharge.