
American Transplant Congress

May 31 – June 4, 2008

Abstract Title: Genetic risk factors of posttransplant diabetes mellitus in Hispanic kidney transplant patients: A single center study

Jae W. Yang, Pharm.D.^{1,4}, Ian V. Hutchinson, Ph.D., DSc^{2,4}, Vera Pravica, M.D., Ph.D.^{2,4}, Gilbert Burckart, Pharm.D.², Tariq Shah, M.D.^{1,2,3,4} and David I. Min, Pharm.D.^{1,3,4}. ¹Health Sciences, Western University, Pomona, CA, United States; ²University of Southern California, Los Angeles, CA, United States; ³Saint Vincent Medical Center, Los Angeles, CA, United States and ⁴National Institute of Transplantation, Los Angeles, CA, United States.

Body: Incidences of type 2 diabetes mellitus (DM) are significantly different among different ethnic groups in a general population. A new onset post transplant diabetes mellitus (PTDM) is an important complication after kidney transplantation and is associated with reduced overall patient and graft survival.

Objectives: to determine the genetic risk factors for PTDM in Hispanic kidney transplant patients.

Methods: A total of 572 Hispanic patients who have received kidney allograft at St. Vincent Medical Center, between January 1, 2001 and September 30 2005 were reviewed and a total of 230 patients were included in this study. The patients who have DM as a primary diagnosis prior to transplantation, with transient hyperglycemia or extra renal transplantation were excluded.

Recipients DNAs were genotyped for a total of 14 diabetes associated genes reported in the literatures and incorporated for binary logistic regression analysis to determine the association by using SPSS. $P < 0.05$ was regarded as of statistical significance.

Results: A total of 59 patients were fit to our definition of PTDM (fasting

glucose ≥ 126 mg/dL in two occasions). In the case of genotypes, significant associations were found between the development of PTDM and the distributions of mutant alleles in two hepatocyte nuclear factor 4-a (HNF4A) of rs2144908 ($p=0.008$) and rs1800961 ($p=0.004$), hepatocyte nuclear Factor 1-a (HNF1A, rs=1800574)($p < 0.002$), and Insulin Receptor Substrate 1 (IRS1, rs1801278) ($p=0.006$) genes. But all other genes were not significantly associated with PTDM in kidney transplant patients with Hispanic ethnicity.

Conclusion: This study indicates that HNF-4a, HNF-1a, and IRS1 gene mutant

alleles are significantly associated with PTDM in kidney transplant patients with Hispanic ethnicity.