Associations Of Human Leukocyte Antigen-g With Resistance And Susceptibility To Hiv-1 Infection In The Pumwani Sex Worker Cohort.

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Abstract:

OBJECTIVE: To determine the association between human leukocyte antigens (HLA)-G genotypes and resistance or susceptibility to HIV-1. DESIGN: A group of sex workers in Pumwani, Kenya can be epidemiologically defined as resistant to HIV-1 infection despite frequent exposure and provide an example of natural protective immunity. HLA class I and II molecules have been shown to be associated with resistance/susceptibility to infection in this cohort. HLA-G is a nonclassical class I allele that is primarily involved in mucosal and inflammatory response, which is of interest in HIV-1 resistance. METHODS: In this study, we used a sequence-based typing method to genotype HLA-G for 667 women enrolled in this cohort and examined the influence of HLA-G genotypes on resistance or susceptibility to HIV-1 infection. RESULTS: The G*01 : 01:01 genotype was significantly enriched in the HIV-1-resistant women [P = 0.002, Odds ratio: 2.11, 95% confidence interval (CI): 0.259-0.976], whereas the G*01 : 04:04 genotype was significantly associated with susceptibility to HIV-1 infection (P = 0.039, OR:0.502, 95% CI:0.259-0.976). Kaplan-Meier survival analysis correlated with these results. G*01 : 01:01 genotype was associated with significantly lower rate of seroconversion (P = 0.001). Whereas, G*01 : 04:04 genotype was significantly associated with an increased rate of seroconversion (P = 0.013). The associations of these HLA-G alleles are independent of other HLA class I and II alleles identified in this population.