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Differential distribution of IL28B rs12979860 single nucleotide polymorphism among Egyptian healthcare workers with and without cellular immune response to Hepatitis C virus

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Abstract

Single Nucleotide Polymorphism (SNP) at the rs12979860 site of interleukin (IL)-28B gene has been associated with spontaneous hepatitis C virus (HCV) clearance and interferon (IFN)- treatment response. The CC genotype is associated with favorable outcome of infection and IFN- response. The distribution of IL-28B alleles among Egyptian healthcare workers (HCW) with and without HCV-specific cell mediated immune (CMI) responses is not known. We recently reported HCV-specific CMI responses without viremia or seroconversion in exposed uninfected HCW at high risk of infection. The relation of IL28-B SNP to these CMI responses has not been investigated. Herein, we investigated the IL28B genotype and HCV-specific CMI response in seronegative, aviremic HCW (n=187) and their chronically infected (n=48) and resolved (n=24) counterparts. We used an enzyme-linked immunospot (ELISPOT) assay to quantify IFN- production in response to a set of genotype 4a overlapping 15mer peptide pools covering the whole HCV genome to assess CMI responses to HCV. IL28B genotype was examined by real-time PCR. We confirmed our previous findings of HCV-specific CMI without viremia or seroconversion in ~25% of the HCW suggesting clearance of low levels of HCV exposures. The frequency of IL28-B CC, CT, and TT alleles among these 259 HCW were 43%, 43%, and 14%, respectively. The percentage of homozygosity for the C allele in chronically infected, resolved, and seronegative aviremic subjects was 25%, 54%, and 46%, while that of the T allele was 27%, 0% and 13%, respectively, suggesting differential distributions among subjects with different HCV states. As reported previously, IL28-B SNP predicted the outcome of HCV infection (p=0.009). A significant difference was found between HCV-specific CMI responders and non responders in all 3 categories of HCV states (p=0.013). In summary, these data show differential IL28-B genotype distribution among Egyptian HCW with different HCV states and that IL28-B could predict the outcome of HCV-specific CMI responses.

Biography:

Dr Abdelwahab has completed his PhD in Immunology at the University of Maryland School of Medicine in 2002 and is an associate professor at Minia University Faculty of Medicine, Egypt. He has published 27 papers in reputed international journals and 11 papers in local Egyptian journals.