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HLA alleles in Egyptian HCV genotype-4 carriers

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Risk factors affecting asymptomatic HCV carriers as well as intrafamilial HCV transmission are not completely known. We hypothesized that immunological factors related to HLA profiles may affect the intrafamilial transmission. We investigated the possible association between HLA class I & II genes and the presence of HCV infection, as well as their possible role in intrafamilial tramsmition. One hundred forty five individuals comprising 40 families were recruited from bone marrow transplantation (BMT) unit at the National Cancer Institute, Cairo University. Serologic class I and generic class II MHC alleles were determined. Hepatitis C virus was detected by enzyme immunoassay (EIA) and confirmed by INNO-LIA. Detection of viral RNA was also confirmed by RT-PCR and HCV genotyping was done by immunoblotting (INNO-LiPA) and direct sequencing by TrueGene kit. Out of the 145 serum samples, 33 were positive for HCV antibodies by EIA and confirmed by both immunoblotting techniques and RT-PCR. Twenty-eight of them were eligible for HCV typing. The genotypes detected were 4, 2a, 1a and 1b. A mixed infection by more than one genotype was detected in 9 cases. Six families had 2 or more members reactive for HCV antibodies. Intrafamilial transmission was confirmed by HCV-sequence in 3 families. HLA class I & II alleles A28, A29, B14 & DR7 were significantly encountered in HCV positive than negative cases (p=0.040, 0.003, 0.001 & 0.010 respectively). In addition, two cases showed evidence of viral clearance, both expressed B50 (21) allele. We conclude that, there is a possible impact of both class I and class II alleles on HCV infection, resistance, clearance and intrafamilial transmission.