Abstract

Introduction. Low infection rates in neonates born to HIV-1-seropositive mothers highlight the existence of natural defense mechanisms in the maternal-fetal interface. Human beta defensins (HBDs) inhibit HIV-1 replication in vitro and their variants are associated with HIV-1 resistance/susceptibility. Objective. Levels of HBD mRNA expression in placentas were obtained from seropositive and healthy mothers to determine whether HIV-1 infection induces anti-viral factors. Materials and methods. HBD-1, -2 and -3 transcripts were quantified by real time RT-PCR, and A692G/G1654A/A1836G variants in the DEFB1 gene were evaluated by sequencing. Results. Transcript levels of HBD-1 were significantly higher, and those of HBD-3 were lower in placenta from seropositive mothers compared to controls. Additionally, simultaneous presence of the A692G A/G and A1836G G/G genotypes was associated with high expression of HBD-1 in all populations and the A692G variant in babies born to seropositive mothers was in Hardy Weinberg disequilibrium. Conclusion. Contrasting results in levels of HBDs were probably due to viral stimuli and suggest that HIV-1 induce a differential expression of HBDs in placenta and these proteins could be involved in protecting against HIV-1 at least early in pregnancy. However, it was not possible to associate these findings directly with protection against HIV-1 vertical transmission since none of the newborn infants became infected.

Keywords

Human beta-defensins, placenta, HIV-1, immunity, innate, infectious disease transmission, vertical.