I HLA concordance increases perinatal human immunodeficiency virus type 1 transmission

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Abstract:

Major histocompatibility complex (MHC) gene products are expressed on human immunodeficiency virus (HIV)-infected cells and incorporated into the lipid envelope of HIV virions. Macaques immunized with human MHC gene products are protected from simian immunodeficiency virus challenge when the virus is grown in cells expressing the same MHC alleles. To relate these findings to mother-to-child transmission of HIV-1, investigations of whether sharing HLA between mother and infant influenced the risk of transmission of HIV-1 to the child were carried out. Class I HLA concordance was independently associated with a stepwise increase in the risk of perinatal HIV-1 transmission for each additional concordant allele (odds ratio, 2.63; 95% confidence interval, 1.36-5.07; P = .003). Thus, discordant HLA may provide infants with a means of protection against HIV-1 as a result of allogeneic infant anti-maternal MHC immune responses.