

Oral presentation

Risk factors for human cytomegalovirus (HCMV) infection in infants born to HIV-1 infected mothers in Thailand

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from Fourth Dominique Dormont International Conference. Host-Pathogen Interactions in Chronic Infections Paris, France. 13-15 December 2007

Published: 9 April 2008

Retrovirology 2008, **5**(Suppl 1):O12 doi:10.1186/1742-4690-5-S1-O12

This abstract is available from: <http://www.retrovirology.com/content/5/S1/O12>

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Background

In Thailand where virtually all pregnant women are infected with HCMV, about 2% of infants are congenitally infected with HCMV [1]. However, the transmission rate among infants born to HIV-1 infected mothers is not well known. Our objectives were to evaluate HCMV transmission rates in infants born to HIV-1 infected mothers, and to identify maternal and newborn risk factors associated with infant HCMV infection.

Materials and methods

Ninety-seven HIV-1 transmitting mothers were matched on maternal plasma HIV-1 RNA before zidovudine prophylaxis initiation with 194 non-transmitting mothers enrolled in PHPT-1 [2], an HIV prevention trial in Thailand. Infant HCMV infection was assessed by anti-HCMV IgM and/or HCMV DNA within 6 months of age and by IgG serology at 18 months. Congenital HCMV infection was defined as the presence of HCMV IgM and/or a positive DNA PCR within 10 days of life. Univariate odds ratio (95% confidence intervals) were calculated for potential risk factors among maternal (age, HIV and immunological stage, pregnancy history, pregnancy complications, induction of labor, mode of delivery, past/present sexual

transmitted diseases, CD4/CD8 T-lymphocyte counts) and infant characteristics (HIV status, sex, prematurity and birth weight). Adjusted odds ratios were calculated using logistic regression with stepwise selection of variables with less than 0.20 p value association.

Results

The prevalence of congenital HCMV infection was 16% (10/62) in HIV-1 infected infants and 5% (5/105) in uninfected infants, $p=0.013$. The prevalence of HCMV infection by 18 months of age was 83% (62/75) in HIV-1 infected infants and 62% (112/182) in uninfected infants, $p=0.001$. Upon univariate analysis, among the maternal factors, only vaginal delivery was associated with HCMV infection in infants (OR: 2.5; 95%CI: 1.3-4.7). Among infants' factors, HIV infection (OR: 3.3; 95%CI: 1.7-7.0) and prematurity (OR: 3.5; 95%CI: 1.0-18.8) were associated with HCMV. Upon multivariate analysis only vaginal delivery (OR: 2.5; 95%CI: 1.3-4.5) and infant HIV infection (OR: 3.3; 95%CI: 1.7-6.4) remained independently associated with HCMV infection in infants.

Conclusions

Infant HIV infection and vaginal delivery are the main risk factors for HCMV infection in children born to HIV-1 infected mothers. The clinical consequences of congenital and postnatal HCMV infection on HIV disease progression need to be assessed.

Acknowledgements

This work was supported by Fogarty International Research Collaboration Award (FIRCA, NIH, USA), Grant number: R03TW01346-01.

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