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Oral presentation

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

Woottichai Khamduang*[1,2], Wasna Sirirungsi[2], Gonzague Jourdain[1,3], Baptiste Leurent[1], Kenneth McIntosh[4], Karin Pagdi[5], Rosalin Somsamai[5], Surat Sirinontakan[6], Temsiri Hinjiranandana[7], Wanna Ardong[8], Marc Lallemant[1,3] and Nicole Ngo-Giang-Huong[1,3]

Address: [1]Institut de Recherche pour le Developpement UMI 174/Programs for HIV Prevention and Treatment (PHPT), Chiang Mai, Thailand, 50100, [2]Faculty of Associated Medical Sciences, Chiang Mai University, Chiang Mai, Thailand, 50200, [3]Harvard School of Public Health, Harvard University, Boston, MA 02115, USA, [4]Harvard Medical School, Harvard University, Boston, MA 02115, USA, [5]Lamphun Hospital, Lamphun, Thailand, 51000, [6]Health Promotion Hospital Regional Center I, Bangkok, Thailand, 10210, [7]Somdej Pranangchao Sirikit Hospital, Chonburi, Thailand, 20000 and [8]Buddhachinaraj Hospital, Pitsanuloke, Thailand, 65000

* Corresponding author

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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.

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References

1. Pholampaisathit S, Lausoontornsiri W: **Rate of congenital cytomegalovirus infection: 1996 2000.** *Bulletin of the department of medical services* 2001, **26:**200-205.
2. Lallemant M, Jourdain G, Le Coeur S, Kim S, Koetsawang S, Comeau AM, Phoolcharoen W, Essex M, McIntosh K, Vithayasai V: **A trial of shortened zidovudine regimens to prevent mother-to-child transmission of human immunodeficiency virus type 1. Perinatal HIV Prevention Trial (Thailand) Investigators.** *N Engl J Med* 2000, **343:**982-991.