

**1000. Effect of Cytomegalovirus Infection on Breastfeeding Transmission of HIV and on the Health of Infants Born to HIV-infected Mothers**

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**Background.** Cytomegalovirus (CMV) infection can be acquired in utero or postnatally through horizontal transmission and breastfeeding. The effect of postnatal CMV infection on postnatal HIV transmission is unknown.

**Methods.** The Breastfeeding, Antiretrovirals and Nutrition (BAN) study conducted in Lilongwe, Malawi, randomized 2369 mother-infant pairs to 3 antiretroviral (ARV) prophylaxis arms: mother (triple regimen), infant (nevirapine), or neither, for up to 28 weeks of breastfeeding, followed by weaning. We evaluated CMV infection by performing PCR on stored plasma and peripheral blood mononuclear cells at 24 weeks of age in 492 infants with available specimens. Infants testing CMV-positive at 24 weeks were also tested at birth to approximate the congenital CMV infection

rate, while those CMV negative at 24 weeks were tested again at 48 weeks. Study arms were compared and a Cox proportional-hazards model was used to determine if CMV infection was associated with infant morbidity, mortality, or postnatal HIV acquisition.

**Results.** At 24 weeks of age, CMV infection was detected in 345/492 infants (70.1%); the median plasma CMV viral load was 176.4 copies/ml. Of those CMV-positive at 24 weeks, 8 were also positive at birth, for an estimated congenital CMV infection rate of 2.3%. Of those CMV-negative at 24 weeks, 28.1% were CMV-positive at 48 weeks of age, for an estimated rate of CMV infection of 78.5% at 48 weeks. Among infants HIV-infected perinatally, congenital CMV infection rate was 10%. Plasma CMV viral load was significantly higher in HIV-infected, compared with uninfected, infants (median 1,258.6 vs 174.2 copies/ml;  $p = 0.045$ ). CMV infection at 24 weeks was associated with subsequent acquisition of HIV infection through breastfeeding (HR = 4.52;  $p = 0.15$ ), infant mortality (HR = 4.05;  $p = 0.18$ ), and with HIV infection or death between 24-48 weeks of age (HR = 4.27;  $p = 0.05$ ). There was no difference in CMV infection rates by ARV study arm.

**Conclusion.** Most breastfed infants of HIV-infected mothers in this resource-limited setting are infected with CMV by 24 weeks of age. The estimated rate of congenital CMV infection is higher than that reported for infants in other settings, and even higher for infants HIV-infected at birth. Early CMV infection may be a risk factor for HIV infection through breastfeeding and for infant mortality.

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