Independent effects of nevirapine prophylaxis and HIV-1 RNA suppression in breast milk on early perinatal HIV-1 transmission

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Abstract:

The mechanism of action of single-dose nevirapine on reducing mother-to-child transmission of HIV-1 may involve reduction of maternal HIV-1 or prophylaxis of infants. METHODS: In a study that randomized pregnant mothers to HIVNET 012 nevirapine versus short-course antenatal zidovudine, we compared breast milk HIV-1 RNA viral shedding and administration of single-dose nevirapine between mothers who transmitted HIV-1 to their infants at 6 weeks postpartum and those who did not. RESULTS: In multivariate analyses, maximum breast milk HIV-1 RNA levels (hazard ratio [HR] = 2.50, 95% confidence interval [CI]: 1.25 to 4.99; P = 0.01) and nevirapine use (HR = 0.12, 95% CI: 0.02 to 0.97; P = 0.05) were each independently associated with perinatal transmission at 6 weeks postpartum. Mothers who transmitted HIV-1 to their infants had significantly higher HIV-1 RNA levels in their breast milk between the second day and sixth week postpartum. Among mothers with maximum breast milk virus levels less than a median of 3.5 log(10) copies/mL, the administration of nevirapine further decreased HIV-1 transmission risk from 22.2% to 0.0% (P = 0.04). CONCLUSIONS: Peripartum administration of single-dose nevirapine to mother and infant decreases early perinatal HIV-1 transmission by means of breast milk HIV-1 RNA suppression and, independently, by providing the infant with exposure prophylaxis.