Morbidity And Mortality In Breastfed And
Formula-fed Infants Of Hiv-1-infected
Women: A Randomized Clinical Trial

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Abstract:

CONTEXT: Breastfeeding among women infected with human immunodeficiency virus type 1 (HIV-1) is associated with substantial risk of HIV-1 transmission, but little is known about the morbidity risks associated with formula feeding in infants of HIV-1-infected women in resource-poor settings. OBJECTIVE: To compare morbidity, nutritional status, mortality adjusted for HIV-1 status, and cause of death among formula-fed and breastfed infants of HIV-1-infected women. DESIGN: Randomized clinical trial conducted between 1992 and 1998. SETTING: Four antenatal clinics in Nairobi, Kenya. PARTICIPANTS: Of 401 live-born, singleton, or first-born twin infants of randomized HIV-1-seropositive mothers, 371 were included in the analysis of morbidity and mortality. INTERVENTIONS: Mothers were randomly assigned either to use formula (n = 186) or to breastfeed (n = 185) their infants. MAIN OUTCOME MEASURES: Mortality rates, adjusted for HIV-1 infection status; morbidity; and nutritional status during the first 2 years of life. RESULTS: Two-year estimated mortality rates among infants were similar in the formula-feeding and breastfeeding arms (20.0% vs 24.4%; hazard ratio [HR], 0.8; 95% confidence interval [CI], 0.5-1.3), even after adjusting for HIV-1 infection status (HR, 1.1; 95% CI, 0.7-1.7). Infection with HIV-1 was associated with a 9.0-fold increased mortality risk (95% CI, 5.3-15.3). The incidence of diarrhea during the 2 years of follow-up was similar in formula and breastfeeding arms (155 vs 149 per 100 person-years, respectively). The incidence of pneumonia was identical in the 2 groups (62 per 100 person-years), and there were no significant differences in incidence of other recorded illnesses. Infants in the breastfeeding arm tended to have better nutritional status, significantly so during the first 6 months of life. CONCLUSIONS: In this randomized clinical trial, infants assigned to be formula fed or breastfed had similar mortality rates and incidence of diarrhea and pneumonia during the first 2 years of life. However, HIV-1-free survival at 2 years was significantly higher in the formula arm. With appropriate education and access to clean water, formula feeding can be a safe alternative to breastfeeding for infants of HIV-1-infected mothers in a resource-poor setting.