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Does breast-feeding delay progression to AIDS in HIV-infected children?

Transmission of HIV via breastmilk in children is well documented [1–5]. However, the benefits of breast-feeding on infants' health are also well recognized, especially in preventing infections in the first months of life [6,7].

No data are available concerning the interplay between breast-feeding and incubation time of AIDS in vertically infected children, defined as the interval between birth and the onset of associated diseases meeting the case definition for surveillance purposes [8]. To examine this issue we used data from the Italian National Registry of AIDS. This registry gathers information on date of birth, method of delivery, date of diagnosis of AIDS and whether the child was breast- or bottle-fed as ascertained by the attending physician for paediatric cases.

A total of 117 vertically infected children were reported as of 28 February 1990. Of these, 36 were breast-fed and 64 were bottle-fed. No data about perinatal feeding were available for 17 patients.

Figure 1 shows the proportion of patients developing AIDS over time by type of feeding using non-parametric methods [9]. The median incubation time for bottle-fed children was 9.7 months while for breast-fed children it was 19.0 months. It appears that breast-fed infants have a slower progression to AIDS, even if ultimately there is an overlap in the latter part of the curves.

![Fig. 1. Progression to AIDS from birth by type of feeding. Bottle (-----); breast (---). U Mann-Whitney P = 0.001.](https://example.com/fig1)

The survival curves from diagnosis to death by type of feeding are illustrated in Fig. 2. Breast-fed infants appear to have a longer survival. No difference was noted in the distribution of associated diseases qualifying the cases for surveillance by type of feeding.

![Fig. 2. Survival from diagnosis by type of feeding. Bottle (-----); breast (---). Breslow P = 0.01; Mantel-Cox P = 0.003.](https://example.com/fig2)

Examination of trends in feeding habits among AIDS cases from 1984, when the first case was recorded, to February 1990, demonstrated a stable pattern in breast- and bottle-feeding until 1986. From 1987, bottle-feeding became more frequent (Wilcoxon test P < 0.05).

We have also analysed the existence of any differences in incubation times by mode of delivery. Seventy-eight patients were born by vaginal delivery and 22 by caesarean delivery, for 17 cases data about delivery were missing. No difference in incubation times by mode of delivery was recorded.

Our study has several important limitations that inhibit definitive conclusions. The data were collected retrospectively for surveillance purposes and information is not available on potential confounder factors that may influence the interpretation of the observed interaction. We have no data on clinical conditions of mothers, and it is possible that asymptomatic HIV-positive mothers were more likely to breast-feed their babies than the ones who had AIDS-related complex or full-blown AIDS. In this case breast-fed infants born to asymptomatic women may be over represented compared with breast-fed infants born to symptomatic mothers in our data set.

Another variable that would be useful to demonstrate the relation between type of feeding and incubation times of AIDS that was not available in our data set is the duration of breast-feeding. If a protective effect existed between breast-feeding and development of AIDS, a dose-response effect might be expected.

However, if the hypothesis that breast-feeding delays the progression of AIDS in children is confirmed by prospective studies, there may be important consequences for
breast-feeding practices and time of weaning, especially in endemic areas.

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References

Prevalence of cytomegalovirus antibody in pregnant women, AIDS patients and STD patients in Dar es Salaam

High prevalence (above 90%) of antibody to cytomegalovirus (CMV) is found in groups of individuals with high prevalence of sexually transmitted diseases (STDs), as in homosexual men [1,2]. As AIDS was first described in homosexual men, and because CMV suppresses the immune function, CMV was originally causally associated with AIDS and Kaposi's sarcoma in these patients [3]. CMV DNA sequences have been found in Kaposi's sarcoma in AIDS patients, but it is not known if CMV is causally related to the development of this tumour [4]. Kaposi's sarcoma is commonly found in homosexual AIDS patients but occurs very seldom among haemophiliacs and drug users who develop AIDS [5].

Tanzania has a serious AIDS epidemic with pattern II virus dissemination [6]. The prevalence and pattern of CMV infection in Tanzania has not yet been studied, and we now present the results of such a study.

Sera were collected from 141 pregnant women (mean age 25.2 years) attending the antenatal clinic and 223 patients attending the referral clinic for STDs at Muhibili Medical Centre. The AIDS sera were diagnosed at the Department of Microbiology and Immunology. CMV antibodies were assayed by a passive latex agglutination (CMV-Scan card) test and antibodies to HIV by enzyme-linked immunosorbent assay (ELISA; Vironostika, Organon, Turnhout, Belgium). Positive ELISA tests were verified by Western blot (Biotech, Du Pont, Geneva, Switzerland). All positive Western blots were characteristic of HIV-1 infections. Statistical significance was calculated by the chi-square method using Yate's correction [7].

Antibody to CMV was found in 89 out of 141 pregnant women (63.1%). CMV infection occurred somewhat more frequently but not significantly ($P > 0.05$) in the HIV positives, 85.7% (12 out of 14), compared with 60.6% (77 out of 127) of the HIV seronegatives (Table 1). The prevalence of CMV antibodies in the AIDS patients was 90.7% (39 out of 43) and 74.7% (59 out of 79) in the HIV-seropositive non-AIDS individuals (pregnant women and STDs). In the entire group of HIV-infected patients the prevalence was 80.3% (98 out of 122). Among the STDs the prevalence of CMV antibodies was 69.1% (154 out of 225) with no significant difference between sexes.

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>HIV−</th>
<th>HIV+</th>
<th>No. CMV seropositive (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS</td>
<td>39/43 (90.7)</td>
<td>None</td>
<td>39/43 (90.7)</td>
<td></td>
</tr>
<tr>
<td>STDs</td>
<td>154/223 (69.1)</td>
<td>107/158 (66.9)</td>
<td>47/65 (72.3)</td>
<td></td>
</tr>
<tr>
<td>Pregnant women</td>
<td>89/141 (63.1)</td>
<td>77/127 (60.6)</td>
<td>12/14 (85.7)</td>
<td></td>
</tr>
</tbody>
</table>

STDs, sexually transmitted diseases.

HIV seropositivity was found in 65 out of 223 (29.1%) STD patients. There were more HIV positives among the women, 30 out of 77 (38.9%) than among men, 35 out of 146 (24.0%) ($P < 0.05$). The mean age of male and female patients with STDs was almost the same, 27.5 and 28.0 years, respectively. Two out of 52 CMV antibody-negative pregnant women (3.8%) had HIV antibody while 12 out of 89 CMV-antibody-positive women (13.5%) had HIV antibodies ($P > 0.05$). The corresponding figures for