Infant feeding patterns and HIV–1 transmission

Letters in the Lancet

In the last issue of Field Exchange we summarised an article published in the Lancet by Anna Coutsoudis and colleagues which found that there are substantial risks of HIV-1 transmission associated with non-exclusive (mixed) breastfeeding. Exclusive breastfed infants however did not seem to convey any excess risk of HIV-1 transmission over formula feeding. Subsequent correspondence in the Lancet is summarised below.

Issues raised

Issued raised were: possible confounding by reasons for choice of feeding method, viral overload or other unmeasured factors. In the Coutsoudis study the method of feeding (exclusive breastfeeding, mixed breastfeeding and artificial feeding) was chosen by the mother despite counselling promoting exclusive breastfeeding. If women who did not choose exclusive breastfeeding had higher viral loads (which are a strong risk factor for transmission) this could also explain differences in transmission between groups.

Coutsoudis responded that known risk factors for mother to child transmission were investigated and did not account for associations between HIV-1 transmission and feeding method. Also feeding groups did not differ by a marker of maternal disease severity (cd4-cell/cd8-cell ratio).

Another important point raised by the same correspondent highlighted that the RNA-positive infants who died before 3 months were not included in the group who were exclusively breastfed for at least 3 months (by definition), but were included in the other 2 groups.

Coutsoudis claims that survival bias did not account for findings as - if deaths before 3 months are excluded - transmission rates at 3 months among exclusive (14.6%) and never breastfeeding (16.1%) groups were similar, whereas transmission among mixed breastfeeders was significantly higher (21.5%)

The timings of infection and testing in the study also caused some concern. Coutsoudis acknowledges that the 1-month transmission rates reported in the study could be misleading as HIV testing was carried out at birth, at 1 week, 6 weeks and 3 months.

The following additional points were made in the subsequent correspondence:

1 Mathematical models show that if HIV-1 positive women are aware of their status and all HIV negative
women continue to breastfeed, there will be fewer adverse outcomes by avoiding breastfeeding, as long as the risk of infectious disease and malnutrition is moderate and pre HIV-1 mortality rates do not exceed 70-100 per 1000 live births. However, these models have not accounted for the consequences if risks associated with breastfeeding were lowered as may occur if exclusive breastfeeding in the first few months of life is associated with reduced risk of HIV-1 transmission.

Mathematical modelling also shows that even modest reduction in the risk of HIV-1 transmission will increase the number and types of settings in which breastfeeding presents a better alternative than the introduction of Breast Milk Substitutes.

Models have consistently concluded that complete avoidance of breastfeeding is almost always contraindicated when HIV-1 status is unknown. Even if its potential to reduce the risk of HIV-1 transmission is not realised, the benefits of exclusive breastfeeding to reduce non-HIV-related mortality are well established.

Colostrum and early milk contain abundant antibodes (IgA and IgM) which may be capable of neutralising HIV-1 during the first few days of lactation, the presence of these fall during the first few months of breast feeding.

In conclusion

The main objective of Coutsoudis and colleagues' trial was to assess the efficacy of vitamin A in preventing HIV-1 vertical transmission by randomly comparing it with a placebo. The important finding was that vitamin A does not reduce HIV-1 vertical transmission. The point was also made that the trial included a large maternal dose at delivery, leading to a higher immuno-protection in the breastfed infants.

Exclusive breastfeeding during the first few weeks was thought to account for fewer late post natal mother to child transmissions but the exact risk and timing of transmissions attributable to breastfeeding remains unclear.

Further research is needed to re-evaluate role of breastfeeding on early mother to child transmission of HIV-1. One correspondent called for a randomised controlled trial before there is a change in policy and practice that recommends formula for those HIV positive mothers who can afford it.

Anne Coutsoudis calls for a change of emphasis in current UNAIDS recommendations on infant feeding - in that women who have no other option but to breastfeeding should be encouraged and supported to practice exclusive breastfeeding.

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1Infant-feeding patterns and HIV-1 transmission, Correspondence, the Lancet, Vol. 354, November 27 1999.

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