Increased Inflammation and Monocyte Activation in HIV-Exposed Uninfected Infants

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Objective

HIV-infected infants have higher incidence of maternal infections, infectious disease morbidity, impaired growth and altered immunity compared to uninfected, unexposed babies.

HIV and immune activation are independently associated with maternal HIV-infection and adult health.

It is known about the long-term effects of exposure to HIV and ART and whether HIV-exposed infants have higher levels of inflammation and immune activation.


Background

HIV-exposed infants (HEU) infants born from HIV-infected mothers are infected but not actively infected. Neonatalinfections increase the risk of maternal infection during peripartum. HIV-infected infants have higher levels of inflammation.

Hypothesis

HIV-infected infants have higher markers of inflammation and immune activation at birth and at 6 months of life than HEU and HIV-infants.

Methods

Study Design: Prospective Cohorts

Table 1: Definitions of cohorts

Table 2: Comparison of baseline characteristics across age groups

Outcome measures: Levels of inflammatory markers in maternal and cord blood

Table 3: Comparison of all infants’ inflammatory marker and markers of monocyte activation according to age

Conclusions

- With the exception of IP-10, maternal markers did not correlate with inflammation in HIV-exposed infants (HEU-unexposed).
- CD163 was positively correlated with TNFRI, IP10, and baseline IL-8 was associated with weight at 6 months of age.
- Maternal CD14 was correlated with only infant TNFRI (p = 0.03).

Mortality and morbidity were lower than in HIV-infected infants, but still significantly higher than those in HIV-infected infants.

Summary findings

- HU at birth, at 6 months only TNFRI and IL-10 were significantly higher in HEU compared with HIV control; at 6 months only TNFRI and IL-10 were elevated.

- The inflammatory profile in HEU is similar to that in HIV-infected infants and is associated with the degree of immune activation and inflammation.

- With the exception of IP-10, maternal markers did not correlate with inflammation in HIV-exposed infants (HEU-unexposed).

- Maternal viral load did not correlate with any of the markers of inflammation.

- Birth infant CRP was associated with both weight (p<0.04) and baseline (p>0.04) was associated with weight at 6 months of age.

References

