Persistence of Maternal Human Immunodeficiency Virus (HIV) Antibodies among Perinatally Exposed Infants

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Background

- Infants born to HIV-positive mothers will have HIV antibodies (HIV Ab) present at birth due to transfer of maternal antibodies.
- Clearance of maternal HIV antibodies in the serum of the HIV-exposed infants who are presumed negative is called seroreversion.[1]
- Age at seroreversion varies widely in the literature.
- Available data reveals a range of 6 months to beyond 24 months.[1-3]
- In Houston we have reported mother to child transmission rates as high as 6%.[4]
- Changes in prophylaxis against maternal to child transmission, antibody tests, and retroviral guidelines since initial studies prompted us to re-examine this issue among our high risk population.

Methods

- A retrospective analysis of HIV-exposed infants being followed by the UTHealth Pediatric Infectious Disease Clinic between January 1, 2010 and October 31, 2016 was conducted.
- HIV-exposed infants, presumed negative, were studied to assess the timing of seroreversion.
- A negative HIV DNA PCR and/or available HIV Ab results after 12 months of age was required for inclusion.
- Biological and clinical factors of the mothers and infants were assessed, as well as the location where the antibody test performed (e.g. a commercial vs. hospital-based lab).
- Data was entered into RedCap and results were analyzed using Excel and STATA.
- Descriptive statistics, student t-test, Fisher exact test, and Chi-Square analyses were performed.
- The study was approved by the institutional IRB.

Results

- 162 infants met inclusion criteria.
- 154 (95%) had two or more negative HIV DNA PCR results.

Maternal variables:

- Average age 28.3 years, and 87% black.
- Prior to pregnancy 54.3% were diagnosed with HIV and 27.8% were on antiretroviral medications.
- 47.5% had a non-detectable viral load prior to delivery with a median CD4 count of 414 cells/mm^3.
- 45.8% delivered vaginally and 81% received AZT during delivery.
- 44.4% (72/162) had peripartum infections such as HSV, GBS, or UTI.
- Urine drug screens were performed on 57 mothers, 23 were positive for at least one illicit drug.
- All mothers were counselled not to breastfeed or premasticate food.

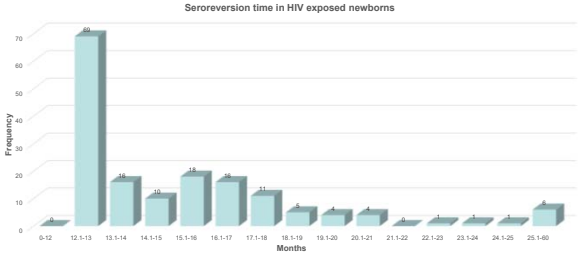
Infant variables:

- Average gestational age 37.1 weeks.
- 93.2% (151/162) received AZT only.
- 13.6% (22/162) received Nevirapine
- 0.04% (6/162) patients received a 3rd drug.

Seroreversion:

- Median seroreversion was 13.8 months (iQR 12.4 – 16.4).
- 42.6% (69/162) had negative HIV Ab by 13 months.
- At 18 months of age 13.6% (22/162) had persistent HIV Ab.
- None of the variables examined (maternal or infant) were associated with time to antibody clearance.
- There was a slight difference in time of clearance if the test was performed at a commercial lab vs. the hospital lab associated with the clinic (median 15.2 vs 13.2 months).

Results, Cont'd



Discussion

- Among our patients, age to seroreverison as well as percentage of patients who remain positive beyond 18 months was similar to other recent studies,[1] even though our population is considered high risk.
- We found a slight difference in time to seroreversion based on the site where the test was performed. This is important to know when determining the timing of the confirmatory antibody test.
- Lastly, while some experts advocate for HIV Ab testing between 12 to 18 months to confirm absence of HIV infection, many debate the utility of this. If one does choose to test HIV Ab, it may be beneficial to wait until after 18 months when a majority of infants will be negative.

References

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