

Poster presentation

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Alterations in immunoglobulin levels in uninfected children born to HIV infected women

Madeleine Bunders*¹, Lucy Pembrey², Taco Kuijpers¹ and Marie-Louise Newell³

Address: ¹Division of Pediatric Hematology, Immunology and Infectious diseases, Emma Children's Hospital (AMC), Amsterdam, The Netherlands, ²Centre of Epidemiology for Child Health, UCL Institute of Child Health, London, UK and ³UK & Africa Centre for Health and Population Studies, University of Kwazulu-Natal, South Africa

* Corresponding author

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Background

Immunoglobulin levels are known to be elevated in HIV infected children. However, little is known about the effect of maternal HIV infection and the maternal altered immune system on immunoglobulin levels in uninfected children. As few data are available on immunoglobulins from young healthy children, we used data from uninfected children born to hepatitis C virus (HCV) infected women as a comparison.

Methods

Prospective data on immunoglobulin levels were available from birth to 5 years for children enrolled in the European Collaborative Study (ECS) of children born to HIV-1 infected women and from birth to 24 months for children enrolled in the European Paediatric HCV Network (EPHN). Children born to HIV/HCV co-infected women were excluded. Smoothers (running means) illustrated patterns of immunoglobulins over age by infection status. Associations between infant and maternal factors and child log₁₀ total IgG, IgM and IgA levels were quantified in linear regression analyses allowing for repeated measures within child. Further analyses were performed using only data of HIV exposed uninfected children to investigate associations between child immunoglobulins and maternal immunological and virological factors and anti-retroviral therapy exposure.

Results

1751 HIV uninfected, 190 HIV infected children (ECS), 173 HCV uninfected and 30 HCV infected children (EPHN) were included. HIV infected children had higher levels of all immunoglobulins compared to uninfected children over all ages. HIV uninfected children had significantly higher IgG, IgM and IgA levels than HCV uninfected children upto at least 24 months, adjusting for gender, prematurity and race. Prematurity was associated with significantly lower levels of immunoglobulins upto 24 months. Children born to African women had higher IgG and IgA levels upto 24 months than those born to white women but lower IgM in the first 6 months.

Among HIV uninfected children higher IgG levels were associated with elevated maternal IgG levels, as well for measurements from 18 months to 5 years of age. No significant effect of maternal CD4 count was observed. ART exposure was associated with significantly lower IgG levels at 6-24 months. Race was not associated with immunoglobulin levels in multivariable analyses in this subgroup.

Conclusions

These findings indicate significant alterations in immunoglobulin levels in uninfected children born to HIV infected women. This suggests that exposure to an activated maternal immune system is associated with an altered humoral response in children without antigen stimulation, and warrants further research.