

HIGH HIV-1 CAN BE DETECTED IN INFANTS PLACE OF THE YAKOVLEV

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Introduction

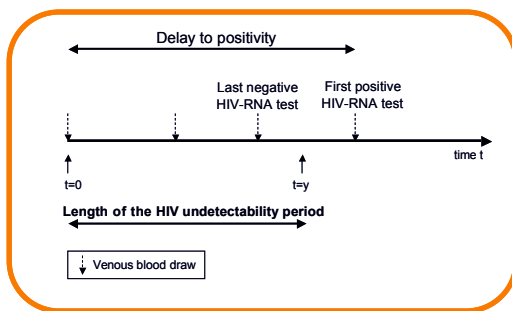
Mother-To-Child-Transmission (MTCT) HIV-1 is a major clinical and epidemiological problem. The **HIV-1 undetectability period** deserves a better knowledge to help to define the optimal antiretroviral regimens before randomized trial confirmation. However, the age at which HIV can be detected occurs sometimes between the last negative and the first positive test. Moreover, the population of children born to known infected mothers is a mixture of two subpopulations, infected infants being a minority. The objective of this study is to apply the **Yakovlev model** to study separately 1) the age at which infection can be detected in infants and the independent predictors of this vertical transmission to non-breastfed children.

Methods

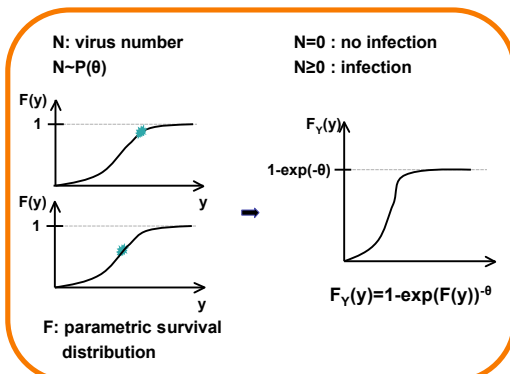
Subjects : The study was conducted in Durban, South Africa. Blood samples from 145 HIV-1 negative at birth infants born to HIV-1 positive untreated mothers were tested until 15 months.

Statistical analysis :

•Delay to positivity vs. length of the HIV undetectability period

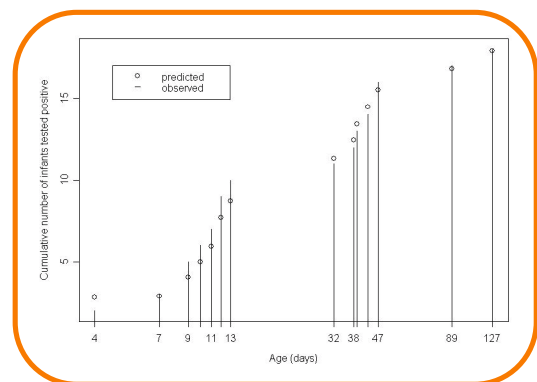


•Yakovlev model: the length of the HIV undetectability period was studied using the Yakovlev model. Eight Yakovlev models were tested using eight parametric survival distributions. Observed and predicted delays to positivity were compared to select the best fitting model and predict the length of the HIV undetectability period. Moreover, the basal maternal CD4+ cell counts was tested as a predictor of infection.

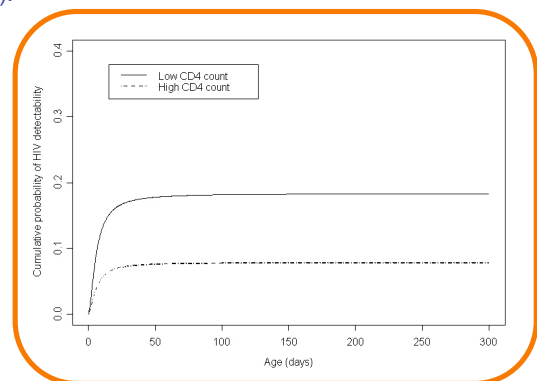


Results

Length of the HIV undetectability period : The comparison between observed and predicted delays to positivity enabled to select the log-logistic model as the best fitting one. The average and median length of HIV undetectability period was about 12 and 6 days.



Independent predictors of infection : Maternal CD4+ cell count was associated with the risk of infection (hazard ratio of low vs. high count 2.44; 95% CI: 1.15-6.67).



Conclusion

•Advantages of parametric model: the global fitting was good in spite of the size of the available dataset and results were coherent with those obtained with larger dataset

•The stronger the predictors of infection are, the shorter the expected length of the HIV undetectability period is an accurate knowledge of the HIV undetectability period is fundamental to determine the optimal length of antiretroviral treatment before conducting randomized trials.