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## NEURODEVELOPMENTAL FUNCTIONING IN HIV-INFECTED CHILDREN BEFORE AND AFTER THE INTRODUCTION OF HIGHLY ACTIVE ANTIRETROVIRAL THERAPY (HAART)

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**BACKGROUND:** Recent investigations suggest a reduced prevalence of encephalopathy in HIV-infected (HIV+) children. However the factors responsible for this decline remain unclear. Early use of highly active antiretroviral therapy (HAART) in children has improved survival and immunologic status. The purpose of this investigation was to determine the impact of protease inhibitor (PI)-containing HAART regimens on neurodevelopmental functioning during the first three years of life.

**METHODS:** This study examined profiles of neurodevelopmental functioning, as measured by the Bayley Scales of Infant Development, in children participating in a cohort of long-term outcomes (PACTG 219C). Random effects models were used to compare mental and motor functioning during the first three years of life by HIV infection status and before and after initiating HAART with a PI.

**RESULTS:** In the pre-HAART era (before 6/1997), mean mental (85) and motor (77) scores in HIV+ (n=54) infants less than one year of age were significantly lower than among HIV- infants (105 and 107, n=221) and remained lower up to two years, with similar negative trajectories. After HAART became available, the mean mental (85) and motor (83) functioning of HIV+ infants (n=91) before one year of age were still significantly lower than that of HIV- infants (92 and 90, n=838). However, against a not unexpected background of declining scores among the HIV- infants (-6.2 points/yr for mental scores and -1.4 points/yr for motor scores), there was evidence of limited improvement in the HIV+ infants relative to their un-infected peers (declines of only -3.2 points/yr for mental scores (p=0.01) and increases of +1.2 points/yr for motor scores (p=0.03)).

**CONCLUSIONS:** Suppression of HIV-1 RNA levels and subsequent benefits in survival and immunologic status brought about by HAART have been followed by decreasing differences in developmental functioning between HIV+ and HIV- children during the first three years of life.

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