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Psychomotor functioning of HIV positive adolescents on antiretroviral treatment in Johannesburg, South Africa.

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Abstract

In 2009 an estimated 33 million people were living with the Human Immunodeficiency Virus (HIV). Of this global population, 35% live in South Africa. Furthermore, sub-Saharan Africa is home to 80% of the world's population of HIV-1 positive children and adolescents. The most prominent form of transmission of HIV in children in South Africa is from mother to child. Until 2004, South Africans had limited access to ARV treatment at and after birth due to the government legislation. As a consequence, treatment of HIV in children may only have been initiated after clinical presentation of immune deficiency. Therefore, currently, HIV-1 positive adolescents born during the period of restricted ARV-access may have experienced physical and developmental symptoms associated with the virus including neurological deficits, prior to initiating treatment. This study investigated the current psychomotor functioning, such as psychomotor speed, manual dexterity, graphomotor and visual-motor coordination of a group of low socio-economic HIV-1 positive adolescents in Johannesburg, South Africa, who are now on a managed antiretroviral programme and how this compared to a HIV negative contrast group. A Mann-Whitney U Test indicated a significant difference in mean non-dominant hand performance in the Grooved Pegboard Test between the two groups (U = 738, $p < .05$), with the HIV positive group performing slower than the HIV negative group. An independent samples t-test indicated a significant difference between groups in the Block Design subtest of the WISC-R [$t(88) = -2.93$, $p < .01$] where the HIV positive group performed significantly worse than the HIV negative group. Additionally, a Mann-Whitney U Test revealed a significant difference in number of errors made in the WISC-R Mazes subtest between groups (U = 736.50, $p < .05$), where the HIV negative group made more errors. Another Mann-Whitney U Test revealed a significant difference between groups in the ROCFT Copy score (U = 534.50, $p < .01$) where the HIV positive group achieved a significantly lower score than the HIV negative group. Lastly, a Mann-Whitney U Test

demonstrated significant differences between the groups in the Trail Making Test A time (U = 445.00, $p < .01$), Trail Making Test B time (U = 509.00, $p < .01$), the number of errors made on the Trail Making Test B (U = 729.00, $p < .05$) and the difference between Trail Making Test B – A time (U = 769.50, $p < .05$) with the HIV positive group performing slower and making more errors in Part B than the contrast group. The findings of the current study imply that HIV-1 vertically-infected adolescents in Johannesburg, South Africa, on a delayed HAART programme appear to have persisting difficulties in complex psychomotor skills where an integration of functions is required. Furthermore, these results indicate an overall poor psychomotor performance in comparison to international normative data, supporting previous findings. Developmental, remedial and therapeutic recommendations were made.