

Effects of HIV and antiretroviral therapy (ART) on brain morphometry in 7-year old children:

Evidence from the children with HIV early antiretroviral (CHER) trial

Emmanuel C. Nwosu¹, Frances C. Robertson¹, Martha J. Holmes¹, Kenneth Mbugua¹, Mark F. Cotton², Francesca Little⁵, Andre van der Kouwe^{3,4}, Barbara Laughton², Ernesta M. Meintjes¹

¹MRC/UCT Medical Imaging Research Unit, Department of Human Biology, Faculty of Health Sciences, University of Cape Town, South Africa.

²Children's Infectious Diseases Clinical Research Unit, Department of Paediatrics & Child Health, Tygerberg Children's Hospital and Faculty of Health Sciences, University of Stellenbosch, Cape Town, South Africa

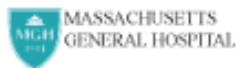
³A.A. Martinos Centre for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital, Charlestown, MA, USA.

⁴Department of Radiology, Harvard Medical School, Boston, MA, USA

⁵Department of Statistical Sciences, Faculty of Sciences, University of Cape Town, South Africa



MGH/HST Athinoula A. Martinos
Center for Biomedical Imaging



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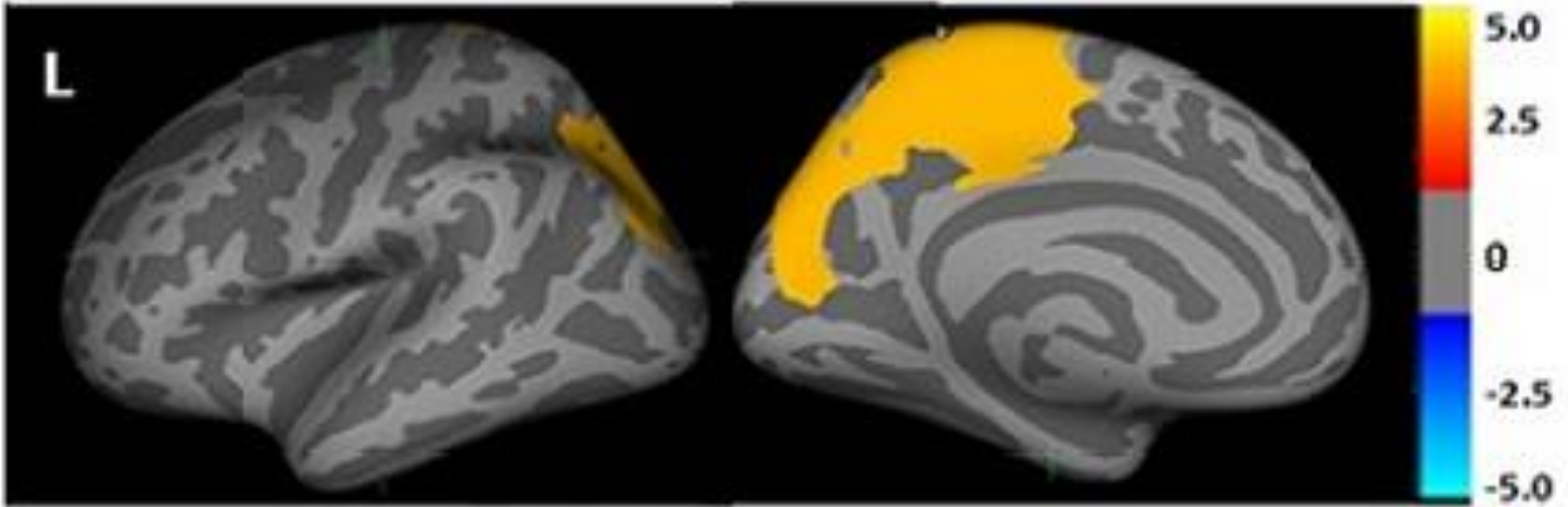


What is the effect of HIV/ART on brain structure in children?

To investigate we used:

- High resolution T1-weighted anatomical magnetic resonance imaging (MRI) on 7 year-old children (50 boys):
 - 56 HIV-infected
 - 43 HIV-uninfected
- Cortical thickness, local gyrification index (LGI) and regional volume measures (calculated in FreeSurfer software)
- Statistical analysis: group comparisons

Results



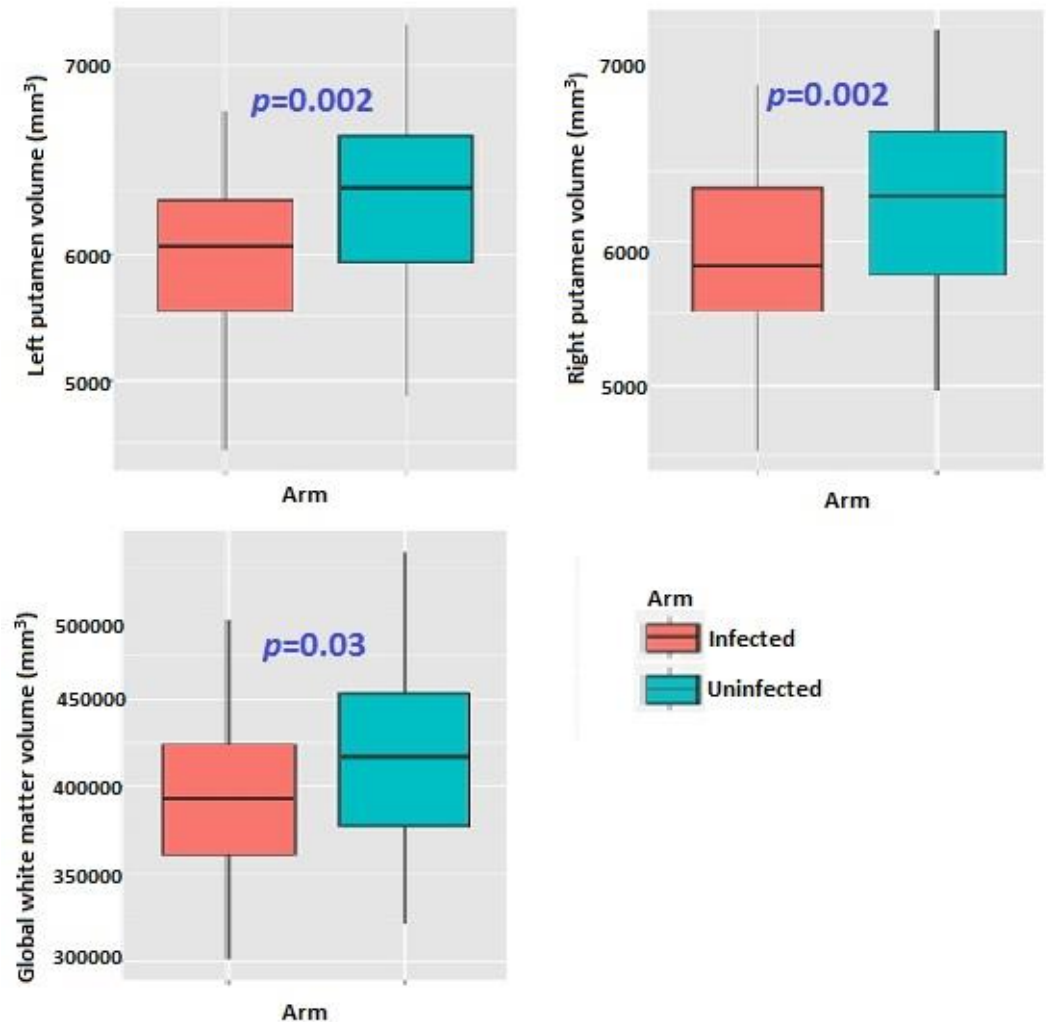
Effect of HIV/ART on LGI

LGIs were greater in HIV-uninfected children than HIV-infected children in a left medial parietal region ($p < 0.05$).

Results

Effect of HIV/ART on brain volume

Total grey and white matter volumes, bilateral putamen and right hippocampus were larger in uninfected children than HIV-infected children.



Conclusions

Summary: Compared to HIV-uninfected children, HIV-infected children on ART had:

- (1) Reduced LGIs in a left parietal region
- (2) Smaller total grey and white matter volumes

Conclusions: Lower LGIs indicate a reduction of buried cortical surface, which has been previously associated with reduced fine motor dexterity and intelligence quotients.

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