Initial growth, CD4, and viral load responses to HAART in Ugandan compared to UK/Irish HIV-infected children

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Abstract

Aims: To compare growth and immune responses to HAART in children starting ART at different age in two settings in which HIV-infected children receive HAART.

Methods: We compared 6 and 12 month responses to HAART in HIV-infected children from two hospitals in the UK (The Royal London Hospital (TRLH) and St Thomas Hospital, London) and from the Mulago Hospital, Uganda. Predictors of new ART use (eg age at ART start, weight z-score) were investigated using logistic regression.

Results: At 6 months, children in the CHIPS and Mulago cohorts had comparable reductions in viral load at 6 months overall (0.05 log copies/ml, p=0.90 vs 0.10 log copies/ml, p=0.85). Although CHIPS and Mulago children had similar overall reductions in viral load, there were significant differences in the relative risk (RR) of achieving viral load suppression in the two cohorts. CHIPS children had a RR of 5.8 (95% CI 1.8-18.8) of achieving viral load suppression compared with Mulago children. CHIPS children also had a higher rate of CD4% increase at 6 months (56% vs 45%, p=0.03) and a higher rate of height-for-age increase at 6 months (16% vs 11%, p=0.02). These differences persisted at 12 months, CHIPS children had a CD4% increase of 56% and a height-for-age increase of 23% compared with Mulago children with a CD4% increase of 10% and a height-for-age increase of 5%.

Conclusions: These results highlight the importance of monitoring growth as well as weight gain over longer periods of ART treatment and suggest that CHIPS children may benefit from earlier introduction of HAART.

Characteristics at ART initiation

6/12 month ART responses (unadjusted)

Predictors of 6 month VL, CD4% and weight/height-for-age response (Fig 2)

Figure 4: Effect of age at ART initiation on 6 month responses

Summary

Direct viral suppressors. CD4% increase and weight gain were greater in both cohorts at 6 and 12 months after ART initiation, but growth responses were poorer in Ugandan children, despite better predicted for such suppression of HIV-infected children. Immune responses at 6 months were also lower in Uganda than CHIPS children, which may related to poorer nutritional status and other environmental factors such as the time of initiating HAART in Uganda. Further studies exploring the role of nutrition and other factors on growth and immune responses in HIV-infected children are needed.