An Audit of Weight-Based Antiretroviral Therapy Dosing in Children

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Introduction

- Paediatric antiretroviral therapy (ART) dosing is weight dependent
- National guidelines recommend ART dose adjustment according to a child's weight
- We conducted an audit to assess ART dosing in a public sector paediatric HIV outpatient clinic in Harare, Zimbabwe. At this clinic children are routinely reviewed by a clinician every three months

Method

From May to July 2015 children and guardians consecutively attending the HIV clinic were enrolled with consent

The following data was collected:

- Current ART regimen, dose and initiation date
- Recent CD4 count
- Current weight
- Ever had a change to ART regimen and/or dose

Correct weight-based dosing was defined according to the National ART Guidelines

Proportion of children with incorrect dosing (either over-dosed or under-dosed) at the time of the clinic visit was determined for each drug

Results

- 3111 children are registered at the clinic
- 2199 (71%) are on ART
- Table 1 summarises the baseline results

Table 1. Baseline results

Number of children enrolled	**458**
Male	244 (53%)
Age 0-3 4-10 11-17	 22 (5%) 192 (42%) 244 (53%)
Median CD4 (cells/mm^3)	714 (IQR 440-1088)
Median time on ART (months)	16 (IQR 8-30)
Ever had a change in ART regime	241 (53%)
Number of children on FDC	311 (68%)

ART Regimes

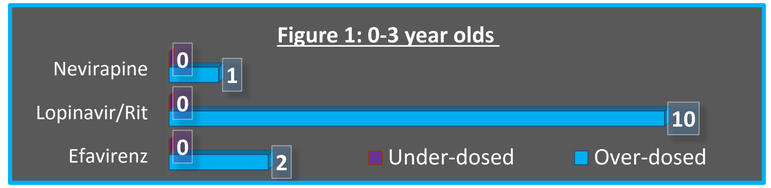
ART regimen combinations were prescribed outside of recommended guidelines in:

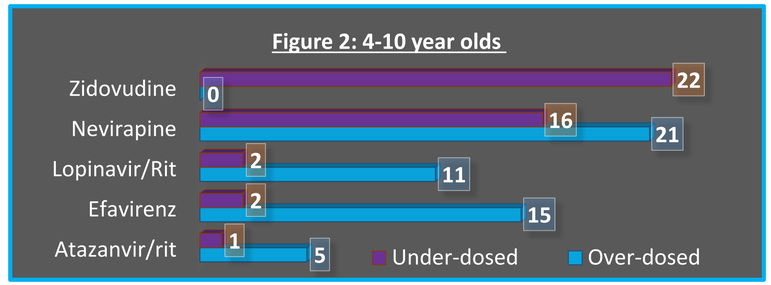
- 2/22 (9%) aged 0-3
- 41/192 (21%) aged 4-10
- 19/100 (19%) aged 11-17

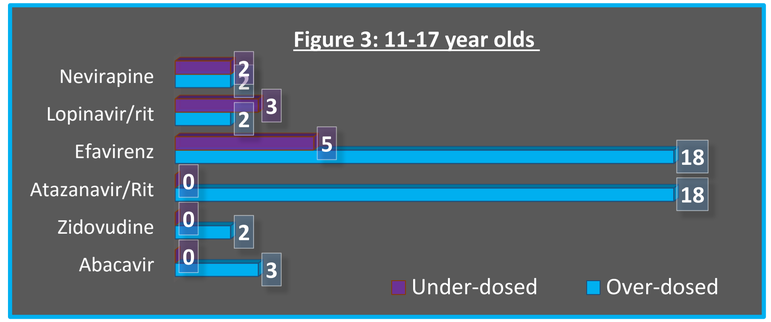
Weight-based ART dosing analysis

Figures 1-3 summarise over- and under-dosing for individual drugs for each age group

- 13/22 (59%) of infants were over-dosed on one drug of the ART combination
- 77% (160) on fixed-dose combination (FDC) had all three drugs correctly dosed compared to those not on a FDC 62% (151) were correctly dosed







Conclusion

Children are often prescribed ART regimens outside of national guidelines and at doses not adjusted to their weight. Suboptimal ART dosing might result in unwanted side effects, development of virological failure and potentially drug resistance. Training of health care workers should address appropriate dosing and simple aide-memoires may support accurate dosing

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