0824 - High Prescription Error Rates among Children on Antiretroviral Therapy in Kenya

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Introduction

Background:

- Globally, of 1.8 million children≤ 14 years, 53% are on antiretroviral therapy (ART).
- More than 30% of children on ART do not achieve viral suppression.
- In Kenya, 76% of children living with HIV are on ART , 65% have viral suppression.
- Children require continuing ARV dose adjustments in line with changing weight and changing pharmacodynamics
- Inappropriate ART dosing may contribute to viral non-suppression due to suboptimal drug levels needed to achieve viral suppression

Aim:

- To determine the magnitude of prescription dosing errors and associated factors

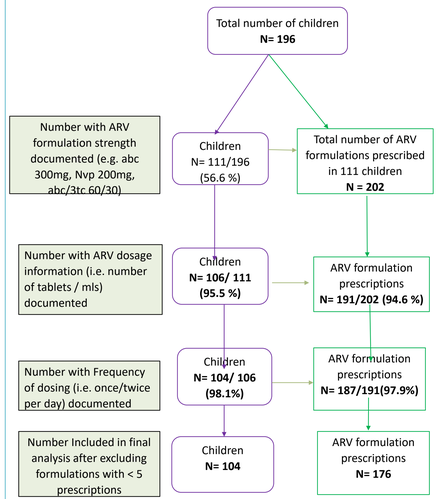
Methods

- We conducted a cross sectional study among HIV Infected children aged ≤11 years active in care and on ART
- Study sites includes four public health facilities in Nairobi, Kenya.
- Demographic, clinical and prescription data for the last clinical visit prior to the study were abstracted from the medical charts of children receiving ART
- Descriptive statistics were used to summarize participant characteristics and prescription errors.
- Logistic regression was conducted to determine factors associated with dosing errors.

Results

- 196 children were included, 53% of whom were male , median age 7.9 years (IQR 4.8, 10.0)
- The most commonly used ART regimens were abacavir/lamivudine/lopinavir/ritonavir taken by 61 (31%) children, followed by zidovudine /lamudivine /nevirapine with 43 (22%) children, and abacavir/ lamivudine/ nevirapine taken by 36 (18%) children

Availability of prescription information



Factors associated with dosing errors

Variable	Adjusted Ratio	95% CI	p-value
Sex			
female	1		
Male	1.411	(0.544-3.661)	0.479
Facility			
01 (tier 2)*	1		
02 (tier 4)	6.113	(1.580-23.653)	0.009
03 (tier 3)	1.745	(0.442-6.883)	0.427
04 (tier 2)	4.234	(0.728-24.633)	0.108
ARV drug class**			
NRTI	1		
NNRTI	8.815	(2.140-36.313)	0.003
PI	0.712	(0.164-3.089)	0.65

*Tier 4-Tertiary referral hospitals; tier 3 -Secondary referral or county referral hospitals; tier 2 -primary care facilities i.e. health centers and dispensaries
**NRTI- nucleoside reverse transcriptase inhibitors, NNRTI-non nucleoside reverse transcriptase inhibitors, PI-protease inhibitor

Prescribing errors

Of the 196 children

- 43.4% (85/196) had no information on the ARV formulation strength
- 45.9% (90/196) had no information on dosage i.e. number of tablets or mls
- 46.9% (92/196) lacked data frequency of dosing i.e. once or twice daily

Dosing errors : data for 92 children excluded

- Of 104 children with complete prescription information, 36.5% (38/104) had at least one dosing error inappropriate for their weight
- Dosage errors by drug class: 34.3% NRTI , NNRTI 42.1% , PI 28.6%

Logistic regression

- Prescription of NNRTI's and being from tier a 4 facility were independently associated with dosing errors

Summary

- Almost half of children did not have prescription information needed for appropriate dispensing
- Among children with appropriate dispensing information , a third had inaccurate dosing of at least one of their ARV formulations

Conclusions & Public health relevance

- High rates of missing prescription information
- Pharmacy staff depend on clinician prescription information for proper dispensing
- Missing prescription information may lead to dispensing of inappropriate doses of ARVs to children
- Need to conduct further longitudinal studies and determine association with viral suppression

FUNDING AND DISCLAIMER: The International AIDS Research and Training Program (IARTP) this study through a grant from the Fogarty International Center, National Institutes of Health, grant number D43 TW009783 A1. The contents of this poster are solely the responsibility of the authors and do not necessarily represent the official views of the Government of Kenya, the National Institutes of Health or the U.S. government.

CROI 2019, WASHINGTON STATE CONVENTION CENTER SEATTLE, WASHINGTON MARCH 4–7, 2019

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