

#773 HIV-1 drug resistance dynamics in the EARTH cohort: a mother-infant pair perspective

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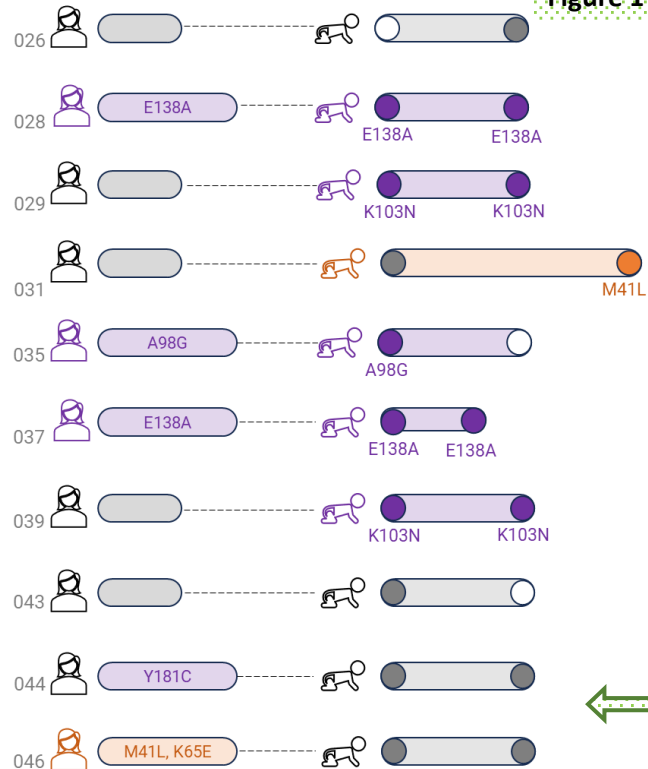
BACKGROUND

- Drug resistance mutations (DRM), either vertically transmitted (tDRM) or acquired (aDRM) can compromise clinical outcomes in children living with HIV (CLHIV) in low- and middle-income countries (LMICs).
- We aim to describe the proportion of tDRM and aDRM in a cohort of early treated children.

METHODS

- Prospective evaluation of HIV DRM in a nested cohort of early treated children (EARTH study) from pre-ART enrolment visit up to 36 months follow up, and their mothers in Mozambique.
- We analyzed pre-ART enrolment data from 30 infants and 10 mothers.

Figure 1

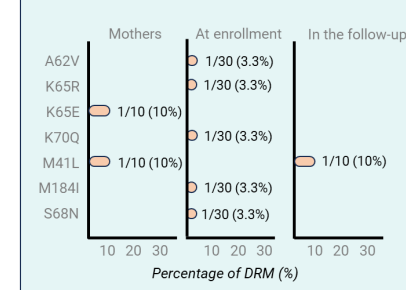


- Ten children had longitudinal (>1) DRM testing during the follow-up.
- Sequencing was performed using Next-Generation Sequencing pipeline with MiniSeq and Iseq100.
- Nucleoside/nucleotide non-analogue reverse transcriptase inhibitors (NNRTI), nucleoside/nucleotide analogue reverse transcriptase inhibitors (NRTI), protease inhibitor (PI) mutations and integrase inhibitors DRM were identified by Stanford HIV Drug Resistance Database.

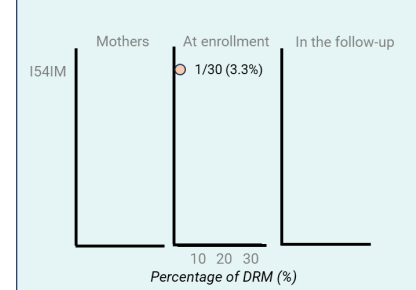
RESULTS

- 25 children had pre-ART samples available.
- 13/25 (52%) had any DRM:
 - 13/13 NNRTI, 2/13 NRTI, and 1/13 PI mutations.
- 3 children (3/12, 25%) without DRM at ART initiation acquired DRM during the first year of follow-up on ART (2/3 NNRTI and 1/3 NRTI) and 2 additional children without sample at ART initiation presented a DRM during the follow-up (2/2 NNRTI).
- Among 10 maternal samples at the time of child ART initiation, 5 (50%) had any DRM, 3/5 (60%) transmitted the same DRM (NNRTI mutation) to their infants (Figure 1).

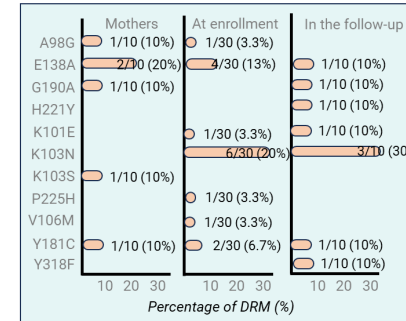
Frequency of NRTI mutation (%)



Frequency of PI mutation (%)



Frequency of NNRTI mutation (%)



Frequency of INSTI mutation (%)

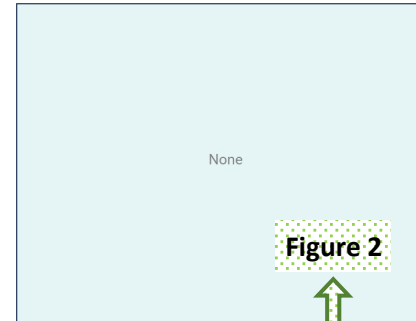


Figure 2

- Globally, 18 children recruited (18/30, 60%) presented a total of 21 DRM at any time during the study (Figure 2), but only 5 children had DRM to drugs of their ongoing ART regimen:
 - 2/3 (67%) with NRTI DRM, 2/17 (12%) with NNRTI DRM, and 1/1(100%) with PI mutations.
- No integrase inhibitors DRM were found.

CONCLUSIONS: The rate of HIV DRM is high in perinatally infected infants, transmitted by their mother or acquired, posing a significant challenge for treatment success in children in low- and middle-income countries.