GLOBAL COHORT ANALYSIS OF DOLUTEGRAVIR VIRAL RESPONSE IN CHILDREN AND ADOLESCENTS LIVING WITH HIV

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OBJECTIVE

To describe virological outcomes among a large, multi-regional cohort of children and adolescents living with HIV (CALHIV) aged 0–19 years receiving dolutegravir (DTG)-based antiretroviral therapy, across West, East, Central and Southern Africa, the Asia-Pacific, Latin America, and the Caribbean, using data from the International epidemiology Databases to Evaluate AIDS (IeDEA).

METHODS

- **All CALHIV aged 0 to 19 years initiating or transitioning to DTG-based ART** between **2018-2024** and enrolled in pediatric HIV care sites contributing to the global pediatric IeDEA cohort
- Baseline : DTG initiation
- Follow-up : 24 months or loss-to-follow-up (no clinical contact ≥ 12 months) or death, or database closeout date
- Baseline viral load (VL) : closest measurement within 6 months prior and 2 weeks post DTG initiation
- Re-initiators : initiated DTG following an ART-interruption period ≥ 6 months
- **Outcomes at 6, 12 and 24 months**
  - VL < 200 copies/mL
  - VL 200 - 999 copies/mL
  - VL ≥ 1000 copies/mL
- **Multinomial regression analysis** adjusted for age, sex, previous ART class and NRTI switch at DTG initiation was used to identify factors associated with **12-month** unfavourable outcomes compared to VL < 200 copies/ mL

RESULTS

Table 1. Baseline characteristics of the 28,718 CALHIV initiating DTG

	N (%)
Female	15,368 (54%)
Region	
Asia-Pacific	1,011 (4%)
Carribean, Central and South America	761 (3%)
Central Africa	2,124 (7%)
West Africa	2,239 (8%)
East Africa	9,126 (32%)
Southern Africa (exc. Republic of South Africa)	9,783 (34%)
Republic of South Africa	3,676 (13%)
Age at DTG initiation	
< 5 years	1,300 (5%)
5-9 years	5,521 (18%)
10-14 years	10,551 (37%)
15-19 years	11,616 (40%)
Previous ART regimen	
ART-naive	5,280 (18%)
Re-initiators	753 (3%)
PI-based ART	5,162 (18%)
NNRTI-based ART	13,119 (46%)
Other	4,404 (15%)
Viral load status	
VL <200 copies	12,903 (45%)
VL = 200 -999 copies/mL	1,214(4%)
VL ≥ 1000 copies	2,904 (10%)
VL unavailable	11,697 (41%)

Overall, 73% of CALHIV on DTG-based ART had VL< 200 copies/ml at 24 months. Those with elevated baseline VL remain at highest risk for elevated VL at 12 months.

RESULTS, continued

Figure 1A : on ART prior to DTG



Figure 1B: ART-naive



Figure 1C: Re-initiators



VL < 200 copies/mL | VL 200 - 1000 copies/mL | VL ≥ 1000 copies/mL | Unavailable VL

Figure 1. Distribution of VL at baseline, 6, 12 and 24 months since DTG initiation, according to previous ART regimen

Follow-up

Median : 26 months (IQR : 15-39)

Overall :
- 2% died
- 23% were LTFU
- 6% discontinued DTG

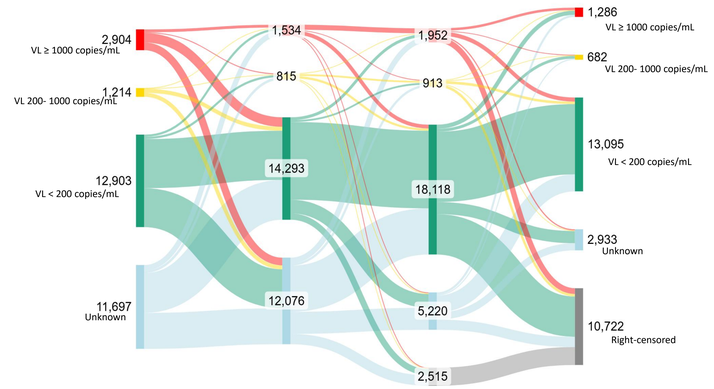


Figure 2. Longitudinal Transitions in Virological Status from DTG Initiation to 24 Months among children and adolescents aged 0-19 years living with HIV

RESULTS, continued

Adjusted for sex, age, region, previous ART class and NRTI switch at DTG initiation, baseline VL predicted 12-month outcomes :

- VL= 200–999 copies/mL was associated with 12-month VL of 200 – 999 copies ml (OR = 1.51, 95% CI: 1.25–1.82)
- VL < 200 copies /ml associated with 12-month VL < 200 copies/ml (OR = 2.86, 95% CI: 2.26–3.62)
- Unknown VL associated with 12-month VL < 1000 copies/ml (OR = 1.46, 95% CI: 1.24–1.71)
- At 12 months, those ART naïve (OR= 5.38, 95%CI: 4.65–6.21), re-initiators (0R = 1.65, 95%CI: 1.53–1.78), and transitioning from PIs (vs. NNRTIs, OR = 1.76, 95CI: 1.49–2.08) had higher odds of being unsuppressed vs. suppressed

CONCLUSIONS

- ART-experienced CALHIV who initiated DTG with VL ≥ 200 copies/ml were less likely to achieve VL < 200 copies/ml at 12 months
- Those transitioning from NNRTI-based regimens were more likely to achieve VL < 200 copies/ml on DTG than those not on ART or those on PI-based regimens
- Further studies are needed to inform better treatment strategies for ART-experienced CALHIV with VL > 1000 copies/ml

PLAIN LANGUAGE SUMMARY

Although most children who started dolutegravir had low virus levels in their blood after one year, those who began treatment with high virus levels often did not achieve this.

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