

Outcomes of Adolescents Switched to Dolutegravir Based Regimens at Botswana-Baylor Children's Clinical Centre of Excellence (BBCCOE), 2016 through 2023

Authors: J.T. Farirai¹, A Avalos^{2,3}, G. Kings^{2,3}, L. Bewlay^{3,5}, K. Molebatsi, L. Ketumile¹, B. Thuto¹, T. Regonamanye¹, D. Ramaabya⁴, B. Nkomo⁴, M. Matshaba¹, The Botswana Epidemiological ART Treatment Cohort Study Team. **Institutions:** 1. Botswana-Baylor Children's Clinical Centre of Excellence 2. Careena Centre for Health, Botswana 3. Botswana-Havard Health Partnership 4. Botswana Ministry of Health 5. Tau Technology, Botswana
(Kindly address questions to: careenahealth@gmail.com)

BACKGROUND

To address the unique challenges of adolescents adhering to anti-retroviral treatment (ART) and remaining in care, the BBCCOE provides comprehensive HIV services to adolescents, including broad social and mental health support. As an alternative to more toxic and difficult to administer ART regimens, Dolutegravir based regimens (DBRs) were introduced in ART-experienced adolescents, beginning in 2016.

We report real-world virological outcomes of treatment-experienced adolescents, switched to a DBR from the 2nd Botswana Epidemiological Treatment Cohort Study from the BBCCOE is public-private facility located at Princess Marina Hospital in urban Gaborone, Botswana.

METHODS

- Electronic data on 499 adolescents (≥ 13 -<18 years) who were consecutively switched from 1st or 2nd line ART to DBRs, were drawn from the BBCCOE Electronic Medical Records System.
- Descriptive statistics were used to report Rates of Virological Failure (VF) (*defined as 2 consecutive VL measurements >400 copies/mL*), Viral Load Suppression (VLS) (<400 copies/mL), Deaths and Lost-to-Follow Up (LTFU), from the time of switch to DBRs until switched off DTG, were LTFU, died for up to 60 months.
- t-Test was used to compare outcome differences by gender, age, 1st of 2nd line treatment switch or VLS at time of switch to DBRs.

Baseline Characteristics	
Gender, Females, No. (%), (n=499)	262 (52.5%)
Age, years, median (IQR)	16 (13-17 years)
Viral Load Supression at Switch (<400 copies/mL) =	88.8% (n=443)
ART Regimens before Switch to DBR:	% & #
• AZT/3TC/LPV/r	33.8% (n=169)
• AZT/3TC/NVP	23.0% (n=115)
• TDF/3TC/EFV	14.2% (n=71)
• AZT/3TC/EFV	11.0% (n=55)
• ABC/3TC/LPV/r	7.0% (n=35)
• TDF/3TC/LPV/r	3.4% (n=17)
• ABC/3TC/NVP	3.2% (n=16)
• ABC/3TC/EFV	2.6% (n=13)
• Others	1.6% (n=8)

RESULTS

- Median age of both males and females, 16 years (52.5% female)
- VLS ranged from 82.3% to 88.2% (see Table 1),
- 10% (50/499) experienced VF after Viral load Suppression (54% (27/50) females, 46% (23/50) males)
- 78% (39/50) experienced VF by 36 months.
- The vast majority of adolescents who experienced VF were ≥ 16 years of age 84% (42/50)
- Median age at first VF 17.3 years (IQR 13-21 years)
- 3.2% (16) re-suppressed on the same DBR;
- 16.2% (81) experienced transient viremia.
- No statistically significant differences in virological failure were found upon disaggregation by gender, VLS or 1st or 2nd Line at the time of Switch ($P > 0.05$)

Table 1: Virologic Outcomes from 12 – 60 months

Months from Time of Switch	# / % of Total Cohort	Number with Viral Loads Tests	% Viral Load Coverage	% Viral Load Suppression	Number VL Suppressed	LTFU	Deaths
0	N=499 (100%)	316	63.3%	82.3%	260	1	2
6	495 (99.1%)	380	76.8%	89.5%	340		
12	492 (98.5%)	350	71.1%	89.4%	313		
24	486 (97.3%)	366	75.3%	84.7%	310		
36	483 (96.7%)	346	71.6%	88.4%	306	2	
48	459 (91.9%)	351	76.5%	84.9%	298	7	
60	430 (86.1%)	229	53.3%	88.2%	202		

STUDY CONCLUSION

88.2% of age extensive psychosocial support to adolescents.

- Higher rates of virologic failure were found in adolescents 16 years and above.
- The lower-than-expected VL coverage (55.3%) at 60 months likely reflected the SARS-COVID19 period, when routine VL monitoring was suspended in Botswana.
- Remarkably, 16.2% of adolescents who experienced transient viremias (VL >400 copies/mL) and 32% of adolescents with confirmed VF subsequently achieved full VLS on their original dolutegravir based regimen, reflecting the potency of DBRs, and the critical importance of comprehensive psycho-social support and routine viral monitoring.



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