

Note: This is Online Appendix 1 of Perks M, Reddy DL, Venter F. Outcomes and characteristics of patients on protease inhibitors at a tertiary level antiretroviral clinic. S Afr J HIV Med. 2023;24(1), a1536. <https://doi.org/10.4102/sajhivmed.v24i1.1536>

Online Appendix 1

TABLE 1-A1: Vertically transmitted group

Current PI regimen	ALL	TDF/FTC/ATVr	AZT/3TC/LPVr	TDF/FTC/LPVr	OTHER*
<i>n/N</i> (%)	36/36 (100)	18/36 (50.0)	9/36 (25.0)	4/36 (11.1)	5/36 (13.9)
Age (years)					
Median	22	21	24	23	24
Gender, <i>n/N</i> (%)					
Female	18 (50)	7 (38.9)	5 (55.6)	3 (75)	3 (60)
Male	18 (50)	11 (61.1)	4 (44.4)	1 (25)	2 (40)
CD4 Count (cells/μL)					
Median	313.5	303	322	211.5	415
≤ 50 , <i>n/N</i> (%)	4 (11.1)	2 (11.1)	-	1 (25)	1 (20)
51-200, <i>n/N</i> (%)	6 (16.7)	3 (16.7)	1 (11.1)	1 (25)	1 (20)
>200 , <i>n/N</i> (%)	26 (72.2)	13 (72.2)	8 (88.9)	2 (50)	3 (60)
Viral Load (copies/mL)					
Median	287	460	180	238415	51
≤ 50 , <i>n/N</i> (%)	7 (19.4)	4 (22.2)	1 (11.1)	1 (25)	1 (20)
51-999, <i>n/N</i> (%)	14 (38.9)	6 (33.3)	6 (66.7)	-	2 (40)
1000-9999, <i>n/N</i> (%)	4 (11.1)	2 (11.1)	-	1 (25)	1 (20)
≥ 10000 , <i>n/N</i> (%)	11 (30.5)	6 (33.3)	2 (22.2)	2 (50)	1 (20)

ABC = Abacavir. ATVr = Atazanavir/ritonavir. FTC = Emtricitabine. 3TC = Lamivudine. LPVr = Lopinavir/ritonavir. PI = Protease inhibitor. TDF = Tenofovir. AZT = Zidovudine.

*Other: ART regimens with 3 or less patients using it. Regimens: AZT/3TC/ATVr, ABC/3TC/LPVr, ATV/LPVr, ABC/AZT/LPVr.

TABLE 2-A1: Types and prevalence of prior and current antiretroviral therapy related side effects and toxicity in patients on PI-based therapy, including those on DBPI

Current PI regimen n/N (%)	ALL 900/900 (100)	AZT/3TC/ LPVr 339/900 (37.7)	TDF/FTC/ LPVr 159/900 (17.7)	AZT/3TC ATVr 147/900 (16.3)	TDF/FTC/ ATVr 125/900 (13.9)	ABC/3TC/ LPVr 38/900 (4.2)	AZT/3TC TDF/LPVr 30/900 (3.3)	ABC/3TC/ ATVr 22/900 (2.4)	OTHER* 13/900 (1.5)	ATV/LPVr (DBPI) 27/900 (3.0)
Initial PI regimen, n/N (%)										
AZT/3TC/LPVr	399(44.3)	271(79.9)	16(10.1)	81(55.1)	16(12.8)	3(7.9)	2(6.7)	4(18.2)	-	6(22.2)
AZT/3TC/ATVr	41 (4.5)	-	-	39(25.9)	1(0.8)	-	-	-	1/13(7.7)	1(3.7)
TDF/FTC/LPVr	160(17.8)	4 (1.2)	101(63.5)	3(2.0)	38(30.4)	8(21.1)	1(3.3)	2(9.1)	-	3(11.1)
TDF/FTC/ATVr	47 (5.2)	-	-	2(1.4)	42(33.6)	-	-	3(13.6)	-	-
ABC/3TC/LPVr	59 (6.6)	10 (2.9)	8(5.0)	3(2.0)	9(7.2)	24(63.2)	-	4(18.2)	-	1(3.7)
AZT/3TC/TDF/LPVr	63 (7.0)	14 (4.1)	15(9.4)	3(2.0)	3(2.4)	-	24(80)	-	4(30.8)	-
ATV/LPVr	20 (2.2)	1 (0.3)	-	-	4(3.2)	-	-	-	1(7.7)	14(51.9)
ABC/3TC/ATVr	10 (1.1)	-	-	-	2(1.6)	-	-	8(36.4)	-	-
AZT/DDI/LPVr	47 (5.2)	24 (7.1)	5(3.1)	11(7.5)	3(2.4)	-	3(10)	-	-	1(3.7)
d4T/3TC/LPVr	17 (1.9)	3 (0.9)	3(1.9)	5(3.4)	2(1.6)	2(5.3)	-	1(4.5)	-	1(3.7)
AZT/TDF/LPVr	9(1.0)	1 (0.3)	2(1.3)	1(0.7)	4(3.2)	-	-	-	1(7.7)	-
AZT/3TC/DDI/LPVr	7 (0.8)	6 (1.8)	1(0.6)	-	-	-	-	-	-	-
d4T/DDI/LPVr	4 (0.4)	3 (0.9)	1 (0.6)	-	-	-	-	-	-	-
Other	17 (1.9)	2 (0.6)	7(4.4)	-	1(8.0)	1(2.6)	-	-	6(46.2)	-
Reason for PI-regimen changes:										
Unknown, n/N (%)	55(6.1)	13(4.0)	24(15.1)	4(2.7)	9(7.2)	1(2.6)	-	1(4.5)	3(30.0)	-
PI side effects, n/N** (%)										
Dyslipidemia										
GI-toxicity	60(7.5)	-	-	39(28.7)	12(10.3)	-	-	4(19.0)	2(20.0)	1(3.7)
Hepatotoxicity	89(11.1)	-	-	53(37.8)	30(25.9)	-	-	2(9.5)	1(10.0)	-
Drug induced rash	1(0.1)	-	-	-	1(0.9)	-	-	-	-	-
	1(0.1)	-	-	-	1(0.9)	-	-	-	-	-
NRTI side effects, n/N (%)										
d4T toxicity										
TDF renal dysfunction	6(0.7)	2(0.6)	5(3.7)	1(0.7)	-	1(2.7)	-	-	1(10.0)	1(3.7)
AZT - coexisting anaemia	18(2.1)	3(0.9)	2(1.5)	2(1.4)	-	8(21.6)	-	5(23.8)	-	-
AZT toxicity - anaemia	8(0.9)	-	1(0.7)	-	-	2(5.4)	-	-	1(10.0)	-
AZT toxicity – PPN	3(0.4)	-	1(0.7)	-	-	1(2.7)	-	-	-	-
PRCA	1(0.1)	-	-	-	1(0.9)	-	-	-	-	-
Drug induced rash TDF	8(0.9)	-	-	-	-	-	-	1(4.8)	1(10.0)	4(14.8)
Unspecified – TDF/3TC	1(0.1)	1(0.3)	-	-	-	-	-	-	-	-
	1(0.1)	-	-	-	-	-	-	-	-	1(3.7)
Other, n/N (%)										
DRT-guided switch										
Drug shortage	53(6.3)	11(3.4)	6(4.4)	5(3.5)	21(18.1)	2(5.4)	1(3.3)	1(4.8)	-	6(22.2)
DDI discontinued	11(1.3)	1(0.3)	8(5.9)	-	2(1.7)	-	-	-	-	-
Improve compliance	48(5.7)	31(9.5)	10(7.4)	4(2.8)	1(1.7)	-	2(6.7)	-	-	-
Unable to swallow LPV	5(0.6)	-	-	-	5(4.3)	-	-	-	-	-
Per Protocol	1(0.1)	-	-	-	-	-	-	1(4.8)	-	-
Hepatitis B coinfection	2(0.2)	2(0.6)	-	-	-	-	-	-	-	-
Hepatitis B resolution	5(0.6)	-	2(1.5)	-	1(0.9)	-	2(6.7)	-	-	-
	5(0.6)	4(1.2)	-	-	-	-	1(3.3)	-	-	-
No change in PI-regimen, n/N (%)	518(57.6)	271(79.9)	99(62.3)	39(24.5)	41(32.8)	23(60.5)	24(80.0)	7(31.8)	4(30.8)	14(51.9)

TABLE 3-A1: Recycled NRTI group

Current PI regimen n/N (%)	ALL 49/49 (100)	TDF/FTC/ LPVr 13/49 (26.5)	ABC/3TC/ LPVr 10/49 (20.4)	TDF/FTC/ ATVr 9/49 (18.4)	AZT/3TC/ LPVr 6/49 (12.2)	ABC/3TC/ ATVr 5/49 (10.2)	AZT/3TC/ ATVr 3/49 (6.1)	AZT/3TC/ TDF/LPVr 2/49 (4.1)	TDF/FTC/ ABC/LPVr 1/49 (2.1)
Age (years)									
Median	43	44	43	31	45	45	40	44	39
Gender, n (%)									
Female	29 (59.2)	8 (61.5)	7 (70.0)	5 (55.6)	4 (66.7)	2 (40.0)	2 (66.7)	1 (50.0)	-
Male	20 (40.8)	5 (38.5)	3 (30.0)	4 (44.4)	2 (33.3)	3 (60.0)	1 (33.3)	1 (50.0)	1 (100)
Recycled NRTI, n (%)									
Current regimen	40 (81.6)	11 (84.6)	10 (100)	9 (100)	4 (66.7)	4 (80.0)	2 (66.6)	-	1 (100)
Previous regimen	9 (18.4)	2 (15.4)	-	-	2 (33.3)	1 (20.0)	1 (33.3)	2 (100)	-
CD4 Count (cells/μL)									
Median	358	392	343	352	678	265	170	397	235
≤ 50 , n (%)	1 (2.1)	-	-	-	-	1 (20.0)	-	-	-
51-200, n (%)	9 (18.7)	2 (15.4)	3 (30.0)	2 (22.2)	1 (16.7)	-	1 (50.0)	-	-
≥ 200 , n (%)	38 (79.2)	11 (84.6)	7 (70.0)	7 (77.8)	5 (83.3)	4 (80.0)	1 (50.0)	2 (100)	1 (100)
Viral Load (copies/mL)									
Median	56	50	50	50	1385.5	67	50	53	50
≤ 50 , n (%)	24 (49.0)	6 (46.2)	6 (60)	5 (55.6)	1 (16.7)	2 (40)	2 (66.7)	1 (50)	1 (100)
51-999, n (%)	16 (32.7)	6 (46.2)	1 (10)	3 (33.3)	2 (33.3)	2 (40)	1 (33.3)	1 (50)	-
1000-9999, n (%)	3 (6.1)	-	2 (20)	-	1 (16.7)	-	-	-	-
≥ 10000 , n (%)	6 (12.2)	1 (7.7)	1 (10)	1 (11.1)	2 (33.3)	1 (20)	-	-	-
Initial ART Regimen, n (%)									
TDF/FTC/EFV	34 (69.4)	9 (69.2)	9 (90.0)	6 (66.6)	2 (33.4)	4 (80.0)	2 (66.6)	2 (100)	1 (100)
TDF/FTC/NVP	1 (2.0)	1 (7.7)	-	-	-	-	-	-	-
AZT/3TC/EFV	6 (12.2)	2 (15.4)	-	-	3 (50.0)	-	1 (33.3)	-	-
AZT/3TC/NVP	1 (2.0)	-	-	-	-	-	-	-	-
ABC/3TC/EFV	5 (10.2)	1 (7.7)	1 (10.0)	3 (33.3)	-	-	-	-	-
d4T/3TC/EFV	1 (2.0)	-	-	-	-	1 (20.0)	-	-	-
d4T/3TC/NVP	1 (2.0)	-	-	-	1 (16.7)	-	-	-	-
Initial PI regimen, n (%)									
AZT/3TC/LPVr	16 (32.7)	6 (46.2)	1 (10.0)	4 (44.4)	2 (33.3)	2 (40.0)	-	1 (50)	-
TDF/FTC/LPVr	6 (12.2)	1 (7.7)	-	2 (22.2)	-	-	1 (33.3)	1 (50)	-
TDF/FTC/ATVr	2 (4.1)	-	-	2 (22.2)	-	-	-	-	-
ABC/3TC/LPVr	16 (32.7)	2 (15.4)	9 (90.0)	1 (11.1)	1 (16.7)	2 (40.0)	1 (33.3)	-	-
AZT/3TC/TDF/LPVr	1 (2.0)	1 (7.7)	-	-	-	-	-	-	-
AZT/DDI/LPVr	2 (4.1)	-	-	-	-	-	1 (33.3)	-	-
d4T/3TC/LPVr	3 (6.1)	-	-	-	1 (16.7)	1 (20.0)	-	-	-
d4T/DDI/LPVr	1 (2.0)	-	-	-	1 (16.7)	-	-	-	-
TDF/FTC/ABC/LPVr	2 (4.1)	-	-	-	1 (16.7)	-	-	-	1 (100)

ABC = Abacavir. ART = Antiretroviral treatment. ATVr = Atazanavir/ritonavir. DDI = Didanosine. DBPI = Double boosted protease inhibitor. EFV = Efavirenz.

FTC = Emtricitabine. 3TC = Lamivudine. LPVr = Lopinavir/ritonavir. NVP = Nevirapine. NRTI = Nucleoside reverse transcriptase inhibitor. PI = Protease inhibitor. PRCA = Pure red cell aplasia. d4T = Stavudine. TDF = Tenofovir. AZT = Zidovudine.

TABLE 4-A1: Documented DRT resistance to NRTI in current PI-based regimen

Current PI regimen	ALL	TDF/FTC/ATVr	TDF/FTC/LPVr	ABC/3TC/LPVr	AZT/3TC/LPVr	AZT/3TC/TDF/ LPVr	AZT/3TC/TDF/ ATVr
<i>n/N</i> (%)	24/24 (100)	9/24 (37.5)	7/24 (29.2)	4/24 (16.7)	2/24 (8.3)	1/24 (4.2)	1/24 (4.2)
Age (years)							
Median	42.5	34	43	42	51.5	48	48
Gender, n (%)							
Female	19 (79.2)	6 (66.7)	5 (71.4)	4 (100)	2 (100)	1 (100)	1 (100)
Male	5 (20.8)	3 (33.3)	2 (28.6)	-	-	-	-
CD4 Count (cells/μL),							
Median	610.5	556	635	596	967.5	470	774
≤ 50 , <i>n</i> (%)	1 (4.2)	1 (11.1)	-	-	-	-	-
51-200, <i>n</i> (%)	1 (4.2)	-	1 (14.3)	-	-	-	-
≥ 200 , <i>n</i> (%)	22 (91.6)	8 (88.9)	6 (85.7)	4 (100)	2 (100)	1 (100)	1 (100)
Viral Load (copies/mL),							
Median	50	158	50	50	50	50	138
≤ 50 , <i>n</i> (%)	13 (54.2)	3 (33.3)	4 (57.1)	3 (75)	2 (100)	1 (100)	-
51-999, <i>n</i> (%)	8 (33.3)	3 (33.3)	3 (42.9)	1 (25)	-	-	1 (100)
1000-9999, <i>n</i> (%)	1 (4.2)	1 (11.1)	-	-	-	-	-
≥ 10000 , <i>n</i> (%)	2 (8.3)	2 (22.2)	-	-	-	-	-
NRTI resistance pattern, <i>n</i> (%)							
HLR – NRTI	4 (16.7)	1 (11.1)	2 (28.6)	-	1 (50)	-	-
ILR – NRTI	8 (33.3)	3 (33.3)	1 (14.3)	2 (50)	-	1 (100) - AZT	1 (100) - AZT
LLR – NRTI	12 (50)	5 (55.6)	4 (57.1)	2 (50)	1 (50)	1 (100) - TDF	1 (100) - TDF
Initial first-line regimen, <i>N</i> (%)							
TDF/FTC/EFV	12 (50)	5 (55.6)	4 (57.1)	2 (50)	1 (50)	-	-
TDF/FTC/NVP	1 (4.2)	1 (11.1)	-	-	-	-	-
AZT/3TC/EFV	1 (4.2)	1 (11.1)	-	-	-	1 (100)	-
d4T/3TC/EFV	9 (37.5)	2 (22.2)	3 (42.9)	2 (50)	1 (50)	-	1 (100)
d4T/3TC/NVP	1 (4.2)	-	-	-	-	-	-
Subsequent first-line regimen, <i>n</i> (%)							
TDF/FTC/EFV	17 (70.8)	7 (77.8)	6 (85.7)	2 (50)	1 (50)	1 (100)	-
TDF/FTC/NVP	2 (8.3)	1 (11.1)	-	1 (25)	-	-	-
AZT/3TC/EFV	1 (4.2)	1 (11.1)	-	-	1 (50)	-	-
d4T/3TC/EFV	4 (16.7)	-	1 (14.3)	1 (25)	-	-	1 (100)
d4T/3TC/NVP	-	-	-	-	-	-	-

ABC = Abacavir. ART = Antiretroviral treatment. ATVr = Atazanavir/ritonavir. DDI = Didanosine. DBPI = Double boosted protease inhibitor. EFV = Efavirenz. FTC = Emtricitabine. HLR = High level resistance. ILR = Intermediate level resistance. 3TC = Lamivudine. LPVr = Lopinavir/ritonavir. LLR + NVP = Nevirapine. NRTI = Nucleoside reverse transcriptase inhibitor. PI = Protease inhibitor. PRCA = Pure red cell aplasia d4T = Stavudine. TDF = Tenofovir. AZT = Zidovudine.