P2-K18

Factors Associated with Second-line Antiretroviral Drug Resistance among adults living with HIV in Homabay County, Kenya,2022

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The patients who had been on Abacavir-based second-line regimens were three times more likely to develop resistance compared to those on other Nucleoside Reverse Transcriptase Inhibitors (NRTI)

BACKGROUND

- HIV Drug Resistance (HIVDR): continued replication of the HIV virus despite one using antiretrovirals
- HIVDR is mostly attributed to changes in viral genetic structure due to:
  - Lengthy treatment period
  - Suboptimal treatment adherence.
- In 2022, Kenya had 1,213,487 adults on Antiretroviral Therapy (ART):
  - First line: 1,115,902 (91.95%)
  - Second line: 97079 (8%)
  - Third line: 500 (0.05%)
- Homabay had 107 (21%) of the cases on the third line
- We aimed to determine factors associated with resistance to second-line Antiretrovirals among HIV-infected adults in Homabay County, Kenya

METHODS

- Conducted a 1:2 Unmatched case-control study among adults on ART in Homabay County
- A case was any HIV-infected adult on third line regimen with confirmed HIV drug resistance
- A control was a virally suppressed HIV-infected adult on second line regimen with a previous virological failure in the same facility as the case
- Simple random sampling used for participant selection from health registers
- Informed Consent was administered to each participant
- A structured questionnaire was administered to participants, and their medical records were used to affirm responses
- Calculated descriptive statistics and bivariate analysis with odds ratio (OR) as a measure of association
  - Variables with p-value <0.2 were subjected to multivariate binary logistic regression
  - p-value <0.05 was independently associated with resistance to second line HIV drugs

RESULTS

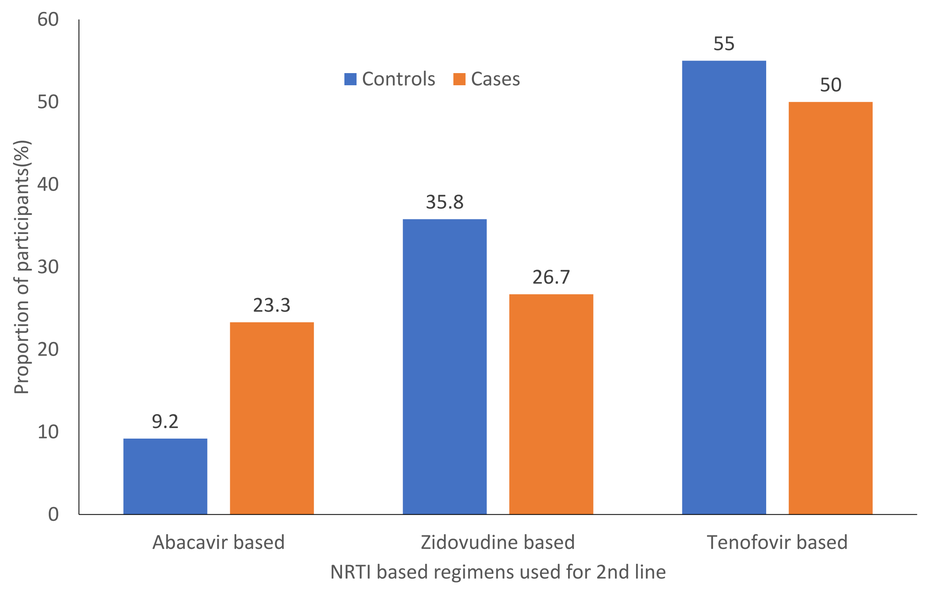
- The mean age of the cases was 40.2 (±14) years and for controls was 38 (±17) years

Table 1: Variables associated with Second Line Antiretroviral Drug Resistance, Homabay, Kenya, 2022

Variables	Cases n (%)	Controls n (%)	POR (95% CI)	P value
Gender				
Male	42 (70.0)	43 (35.8)	4.18 (2.14-8.14)	0
Female	18 (30.0)	77 (64.2)		
2nd Line Regimen				
ABC based	14 (23.3)	11 (9.2)	2.80 (1.14-6.89)	0.025
Non-ABC based	46 (76.7)	109 (90.8)		
Ever Missed ARVs				
Yes	52 (86.7)	85 (70.8)	2.68 (1.15-6.21)	0.022
No	8 (13.3)	35 (29.2)		
Adherence to daily doses				
Missed >2 doses	38 (1.6)	55 (5.0)	2.94 (1.32-6.56)	0.008
Missed 0-1 doses	22 (61.7)	65 (40.8)		
Opportunistic infection				
Yes	29 (48.3)	27 (22.5)	3.22 (1.66-6.25)	0.001
No	31 (51.7)	93 (77.5)		
Chronic Illness				
Yes	9 (15.0)	7 (5.8)	2.80 (1.01-8.07)	0.049
No	51 (85.0)	113 (94.2)		
In agreement with TCAs				
Yes	13 (21.7)	50 (47.7)	2.58 (1.27-5.03)	0.009
No	47 (78.3)	70 (52.3)		
TCA periods				
<= 1 month	39 (65.0)	34 (28.3)	4.70 (2.42-9.11)	0
>1month	21 (35.0)	86 (71.7)		
Stock outs				
Yes	11 (18.3)	3 (2.5)	8.76 (2.34-32.76)	0.001
No	49 (81.7)	117 (97.5)		

RESULTS CONTINUED

- Use of **Non-Abacavir based regimen** (adjusted OR: 0.89, 95% CI: (0.82–0.98) was **protective** against resistance



NRTI: Nucleoside Reverse Transcriptase Inhibitors

Fig. 1: NRTI-based regimens used as second-line ART among the participants

Table 2: Variables that were independently associated with resistance

Variable	Adjusted OR (95%CI)	p value
Being Male	4.63 (2.16–9.91)	<0.001
Presence of Opportunistic Infections	2.63 (1.21–5.73)	0.015
Non- Abacavir based Second line regimen	0.89 (0.82–0.98)	0.013
> 1 month between Clinical Appointments	0.25 (0.12–0.52)	<0.001
Agreeing with Clinical appointments	2.53 (1.05–6.10)	0.038

CONCLUSIONS

- Resistance to HIV second-line drug resistance was found to be associated with modifiable patient factors and drug regimen factors
  - Information could help clinicians in making informed decisions in managing and reducing resistance among people on ART
- Recommendation: individualized clinical monitoring of male patients on antiretrovirals, timely prevention and management of opportunistic infections, consensus on clinical appointments with patients, and strict implementation of the ART treatment guidelines to avoid using Abacavir as part of second-line regimens

ADDITIONAL KEY INFORMATION

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