In HPTN 052, 249 participants had virologic failure. Paired baseline/failure resistance results were obtained for 211 participants (128 in the early ART arm; 83 in the delayed ART arm). Figure 1. Participants with HIV genotyping results. 249 index participants with virologic failure.

Overall, 4.7% of participants had resistance at baseline and 39.3% had new resistance at virologic failure (Figure 2).

Among those with new resistance at virologic failure, 62.7% had non-nucleoside/nucleoside reverse-transcriptase inhibitor (NNRTI) resistance, 21.3% had nucleoside/nucleoside reverse-transcriptase inhibitor (NRTI) resistance, and 16.0% had multiclass resistance (NNRTI and NRTI). The most common NNRTI and NRTI resistance mutations detected were K103N and M184V (70.1% and 90.3%, respectively).

The majority (74.9%) of the participants were on an ART regimen containing efavirenz (EFV), lamivudine (3TC), and zidovudine (ZDV). Other participants were on a PI-based regimen or other EFV-based regimens.

Virologic failure was defined as two consecutive viral loads >1,000 copies/mL and no virologic suppression ≤250 cells/mm3 at ART initiation. All index participants were followed for up to 10 years (2005-2015). At enrollment, HIV-infected index participants were randomized to the early ART arm (CD4 ≤250 cells/mm³ at ART initiation) or the delayed ART arm (CD4 ≥250 cells/mm³ at ART initiation). All index participants were offered ART at any CD4 cell count after the release of interim study results were May 2011. In HPTN 052, some index participants experienced virologic failure. A previous study evaluated HIV drug resistance among those who failed ART before May 2011. [3] This study extends the analysis of HIV drug resistance to include all participants with virologic failure in HPTN 052.

Most participants had HIV subtype C (76.8%) or B (11.8%). The majority (74.9%) of the participants were on an ART regimen containing efavirenz (EFV), lamivudine (3TC), and zidovudine (ZDV). Other participants were on a PI-based regimen or other EFV-based regimens.

The authors thank the HPTN 052 study team and participants for providing the samples and data used in this study. We also thank the laboratory staff who helped with sample management and testing.

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CONCLUSIONS

• New drug resistance at virologic failure was less frequent among participants with early ART initiation, but this difference was not statistically significant.
• New drug resistance at virologic failure was more frequent among those receiving EFV/3TC/ZDV than among those receiving other ART regimens.
• Lower baseline (pre-ART) viral load was the main factor associated with acquisition of HIV drug resistance.

METHODS

STUDY COHORT

HPTN 052 enrolled participants from Botswana, Kenya, Malawi, South Africa, Zimbabwe, Brazil, India, Thailand, and USA. HIV drug resistance was evaluated at baseline (prior to ART initiation) and at virologic failure. Resistance was assessed in the early and delayed ART arms. Resistance was also assessed for participants in the delayed ART arm who initiated ART before vs. after May 2011 (Table 1).

Table 1. Study groups.

HPTN 052 Study Team

Study arm

Early ART arm

n=128

Delayed ART arm

n=83

Early ART arm before 5/2011

n=61

Early ART arm after 5/2011

n=67

Delayed ART arm before 5/2011

n=22

Delayed ART arm after 5/2011

n=61

Ten years of ART was associated with a reduced HIV incidence of 90% in HPTN 052.

PROJECTED OUTCOMES

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REFERENCES

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Delay in ART arm with ART initiation after May 2011 any Delayed ART arm with ART initiation before May 2011 any Early ART arm 350–550 Delayed ART arm 430–550

Virologic failure was defined as two consecutive viral loads >1,000 copies/mL and no virologic suppression ≤250 cells/mm³ at ART initiation. All index participants were offered ART at any CD4 cell count after the release of interim study results were May 2011. In HPTN 052, some index participants experienced virologic failure. A previous study evaluated HIV drug resistance among those who failed ART before May 2011. [3] This study extends the analysis of HIV drug resistance to include all participants with virologic failure in HPTN 052.