HIV Drug Resistance

Keywords: HIV; Drug resistance; HIV/AIDS; ART

Abbreviations: ARV: Antiretrovirals; ART: Antiretroviral Therapy; TDR: Transmitted HIV/AIDS Drug Resistance; NNRTIs: Nonnucleoside Reverse Inhibitors; WHO: World Health Organization

Editorial

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Resistance to antiretrovirals (ARV) remains an important limitation to the successful HIV/AIDS therapy. Since 1989, the emergence of resistant HIV/AIDS mutants has been a major cause of antiretroviral therapy (ART) failure. Accumulation of resistance mutations during first-line regimen failure can be prevented by early detection and timely switching to the more costly second-line and third-line ART. These increase health costs associated with spreading of drug-resistant HIV/AIDS and need to develop new HIV/AIDS drugs. In Africa, the important gaps are service delivery and programs performance that are associated with resistance development.

These gaps affect a considerable ART programs, especially the inadequate supply systems and patient retention. In east and southern Africa, there is evidence of a rising prevalence of transmitted HIV/AIDS drug resistance (TDR), mainly associated with nonnucleoside reverse inhibitors (NNRTIs). Pre-therapy resistance is associated with first-line therapy failure. The most common viral mutations in HIV/AIDS patients with ARV drug resistance are M184/V, K103N, and M230L. Detection of new mutations is associated with higher HIV-1 RNA levels during persistent low-level viremia. The reduction in new HIV infections associated with earlier use of ART is predicted to decrease the risk of increasing TDR. Future TDR levels are estimated to be decreased by improving ART-regimen switching practices to the second-line and third-line regimens.

The World Health Organization (WHO) and its partner organizations and experts of HIVResNet group have developed a "Global strategy for the surveillance and monitoring of HIV/AIDS drug resistance". The strategy generates data on emergence and transmission to select the first-line and second-line ART regimens. HIV/AIDS drug resistance testing can improve the therapy outcomes for HIV-infected/AIDS persons.

Viral tropism testing is recommended whenever the use of chemokine-receptor-5 antagonist is contemplated. In developing countries, as the roll out of ART continues, HIV/AIDS drug resistance monitoring for both subtype B and non-subtype B strains of HIV will be increasingly important.