2 TB AND HIV

a Surveillance for resistance to anti-retroviral drugs

INTRODUCTION

South Africa (SA) is afflicted with dual epidemics of tuberculosis (TB) and human immunodeficiency virus (HIV). The country has the world's largest antiretroviral (ARV) program, with approximately 3 million people ever started ARV therapy (ART) by 2015. The National Department of Health adopted a public health approach by using standardised combinations of ARVs: first line ART consists of tenofovir (TDF) or zidovudine (AZT) and lamivudine (3TC) or emitricitabine (FTC) with either efavirenz (EFV) or nevirapine (NVP). As of April 2015, all patients with CD4 cell count <500 cells/µl, advanced WHO staging and TB-HIV co-infection were eligible for life-long ART. Clinical and laboratory monitoring recommends that CD4 and HIV viral load testing be performed at 6 and 12 months, and viral loads repeated every 12 months thereafter. Routine testing for HIV drug resistance (HIVDR) is not performed at ART initiation or NNRTI-based regimen failure - patients failing on these regimens are switched to a standardised protease inhibitor-containing 2nd-line regimen after intensified adherence counselling. HIVDR testing is available for PI regimen failure and is a prerequisite for access to 3rd-line regimen selection.

The NICD Centre for HIV and STIs established an integrated TB-HIV surveillance study in 2014/15 by building on the GERMS-SA hospital-based enhanced surveillance platform. The study introduced surveillance for rifampicin and other drug-resistance in persons initiating TB treatment and/or HIVDR surveillance in persons initiating ART in the same clinic. A single primary health clinic in each province has been selected on the basis of convenience from clinics with high TB and HIV case loads. Enrolment has started in the Eastern Cape (Feb 2015), North West (Jan 2015) and Mpumulanga provinces (Oct 2014). At each clinic, a dedicated surveillance officer (SO) identifies and enrols eligible patients (i.e. patients initiating TB therapy or ART according to routine clinic procedures). Where consent is obtained, SOs interview the participants using a standard questionnaire and available medical records to collect relevant clinical and epidemiological data, and collect sputum or whole blood specimens from the participants. We report on HIVDR data in patients initiating ART.

RESULTS

By September 2015, 219 specimens have been collected for HIVDR testing, 40 (18%) from EC, 24 (11%) from MP and 155 (71%) from NW. Sixty-eight percent of all enrolled participants are female, average age is 33 years (IQR 27-40 years), and median recent CD4 count is 216 cells/µl (IQR 135 – 381 cells/µl). Of 214 case report forms with available data, prior exposure to ART (as PMTCT and/or previous ART) was reported in 57 (27%) participants. Twenty-nine of these reported receiving PMTCT, and 44 had previously received standardized ART for clinical management, between 1 and 5 years prior to current ART re-initiation for an average period of 18 months. Fifteen of these patients had received both PMTCT and ART.

HIVDR testing was successful in 94% of specimens, with amplification failure primarily due to viral loads <1000 copies/ml. NNRTI resistance was detected in 17% of specimens, and dual NRTI/NNRTI drug resistance in 2%. When analysed according to prior ART exposure, HIVDR was present in 30% of participants with any prior ART vs. 15% of those with no reported prior ART (Figure 4).

Whilst study enrolment is at early stages, the data show high proportions of patients are re-initiating ART (27%), and high proportions of NNRTI HIVDR (17%) are present, which may compromise the effectiveness of the NNRTI drug in the standardised first-line regimens.

Sentinel site surveillance, while not population-based and therefore not necessarily generalizable to all clinics, does provide good assessments of prevalence and trend data. The extent to which the facilities surveyed herein are similar to facilities elsewhere and to what extent the patients enrolled are similar to those in the national program needs to be determined in order to ascertain the representivity of this data. However, surveillance through the GERMS platform allows for valuable, consistent and intensified data collection over longer periods of time.

Source: Centre for HIV and STI, NICD-NHLS

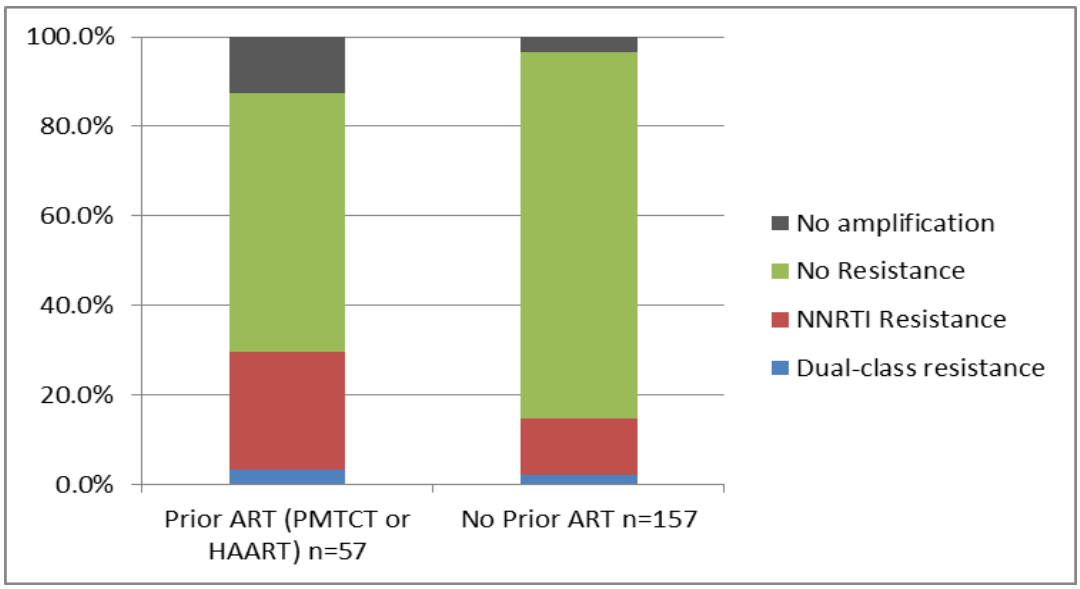

Figure 4. HIV drug-resistance genotyping outcomes amongst 214 participants enrolled in NICD HIVDR surveillance, February – October 2015, according to participants' prior exposure to anti-retroviral therapy.