Long-term Virological and Immunological Outcomes between HIV-Infected Patients with and without Primary HIV Drug Resistance

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Background: Primary HIV drug resistance (PHDR) has emerged after rapid scaling-up of antiretroviral therapy (ART). Prior studies in Thailand have demonstrated the rate of PHDR at 4.9%-7.9%. There is an association between PHDR and risk of treatment failure, which may affect survival.

Objective: This study aimed to compare long-term virological and immunological outcomes between HIV-infected patients with and without PHDR.

Methods: An observational cohort study was conducted in HIV-infected patients with genotypic resistance test performed prior to ART initiation. Patients were categorized into PHDR group (with PHDR) and control group (without PHDR) with 48-month follow up after ART initiation. HIV RNA and CD4 cell count were also evaluated every 6 months after ART initiation. Undetectable HIV RNA was defined as HIV RNA <50 copies/ml.

Results: Of 112 patients, 13 were in the PHDR group and 99 in the control group. Mean age was 38.5 ±10.1 years and 54.5% were males. Baseline median (IQR) CD4 cell count was 179 (52-337) cells/mm³. Demographics, risk of HIV acquisition, HBV or HCV co-infection, VDRL serostatus and ART regimens were similar between the two groups (p>0.05). Following the standard of care in Thailand with non-routine genotypic resistance test prior to ART initiation, all patients started ART before getting the results of the test. Of 13 patients in the PHDR group, 38.5%, 46.2%, and 15.4% had NRTI, NNRTI, and PI resistance mutations, respectively. At 6 months after ART initiation, 40.0% of patients in the PHDR group and 79.3% in the control group had undetectable HIV RNA (p=0.049). ART regimen was adjusted according to the results of genotypic resistance test and HIV RNA level. The proportions of patients with undetectable HIV RNA at 12, 24, 36, 48 months (PHDR vs control group) were 66.7% vs 94.8%, 100% vs 98.1%, 77.8% vs 100%, and 90% vs 98.7%, respectively (all p >0.05). Mean CD4 change at the corresponding periods (PHDR vs control group) were +109 vs +210, +125 vs +255, +241 vs +330, +292 vs +333 cells/mm³, respectively (all p >0.05). No patient died or developed new opportunistic infection.

Conclusion: HIV-infected patients with PHDR have less early virological response than those without PHDR. Genotypic resistance test prior to ART initiation has contributed to the long-term virological and immunological success similar to patients without PHDR.

Keywords: HIV, Drug resistance, Primary, Outcomes