The Emergence of HIV-1 transmitted drug resistance mutations among antiretroviral therapy-naive individuals in Buleleng, Bali, Indonesia

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ABSTRACT
Background: the global scale-p of antiretroviral therapy (ART) is the primary factor contributing to the decline in deaths from acquired immune deficiency syndrome (AIDS)-related illnesses. However, the emergence of transmitted drug resistance (TDR) compromises the effects of ART in treatment-naive individuals, which may hinder treatment success. The present study aimed to identify the presence of TDR among treatment-naive individuals in Buleleng, Bali, which is currently ranked sixth among Indonesian provinces with the highest cumulative human immunodeficiency virus type 1 (HIV-1) infection cases. Methods: thirty-nine ART-naive individuals in Buleleng Regency General Hospital were enrolled in the present study. Blood samples from participants were subjected to a genotypic analysis. Results: 28 protease (PR) and 30 reverse transcriptase (RT) genes were successfully amplified and sequenced from 37 samples. HIV-1 subtyping revealed CRF01_AE as the dominant circulating recombinant form in the region. No TDR for PR inhibitors was detected; however, TDR for RT inhibitors was identified in five out of 30 samples (16.7%). Conclusion: these results indicate the emergence of TDR among ART-naive individuals in Buleleng, Bali. This issue warrants serious consideration because TDR may hamper treatment success and reduce ART efficacy among newly diagnosed individuals. Continuous surveillance with a larger sample size is necessary to monitor TDR among ART-naive individuals.