Commentary on “Prevalence and evolution of drug resistance HIV-1 variants in Henan, China”

Bruce L GILLIAM^{1,*}, Robert R REDFIELD^{1,2}, Richard Y ZHAO^{1,3}, Robert C GALLO^{1,2}

¹*Institute of Human Virology, University of Maryland, Baltimore, MD 21201, USA*

²*Department of Microbiology-Immunology, University of Maryland School of Medicine, Baltimore, MD 21201, USA*

³*Department of Pathology, University of Maryland School of Medicine, Baltimore, MD 21201, USA*

Critical to the implementation and scale-up of successful antiretroviral therapy worldwide is an understanding of the efficacy, toxicities and durability of antiretroviral regimens in the specific populations, which they are utilized. In order to obtain this information monitoring and evaluation or operational research must be done in each country or population. The article by Li *et al* in this issue represents an outstanding example of the importance of data obtained in the populations treated [1]. The authors proactively evaluated the outcomes at 3 and 6 months of 118 and 124 HIV infected individuals, respectively, treated with zidovudine, didanosine and nevirapine in one region in China. This regimen was chosen from the available agents in this region. Surprisingly, there was minimal virologic response to this regimen at 3 and 6 months and there was a staggering 62.7% rate of drug resistance mutations in the group treated for 6 months. Had this regimen been implemented on a wide scale without evaluation, significant resistance could have developed in the population. This, in turn, would lead to transmission of resistance mutations into populations never treated with antiretroviral agents as has been demonstrated in the US and Europe [2, 3]. With limited drug formularies, transmission of drug resistance to nonnucleoside reverse transcriptase inhibitors or cytosine nucleoside analogs could lead to a lack of available treatment options for newly diagnosed HIV infected individuals in many regions. Not aggressively evaluating agents and regimens in relevant populations prior to wide scale implementation could lead not only to treatment failure at the level of the individual patient, but also failure at the program level, negating the ability of treatment to reverse the impact of the growing AIDS epidemic on economic and geopolitical landscape of the world. Although this was a smaller study, the data, when examined in the context of and synthesized with data from the Chinese national surveillance programs and other regional studies, will provide useful evidence to help China develop the optimal national antiretroviral regimen.

China and these investigators are to be congratulated for having the openness to rapidly evaluate the consequences of their treatment choices in order to modify their treatment regimens based on evidence based data. This study emphasizes the importance of operational research and the need to test drug combinations prior to wide scale implementation. It is reminiscent of the surprising high virologic failure rates seen with the combination of tenofovir, abacavir, and lamivudine, previously predicted to be a potent, safe regimen [4, 5]. In addition, it reminds us all that drugs demonstrated to be efficacious in one population or country may not be as efficacious or tolerable in another. It is likely that the lack of adherence and success in this study was due largely to toxicities of the antiretroviral agents, which previously were used in other populations with more success. Other investigators worldwide should emulate the example of Li *et al* and proactively evaluate the characteristics of antiretroviral agents, alone and in combination, in specific populations and countries prior to scaling up to treat the entire population or country.

*Correspondence: Bruce L GILLIAM
725 W. Lombard St. Baltimore, MD, USA 21201
Tel: 410-706-4613; Fax: 410-706-1992
E-mail: gilliam@umbi.umd.edu

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