

HIV resistance to anti-retroviral therapy in sub-Saharan Africa: Is it time for individualized treatment to succeed test and treat strategy?

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EDITORIAL

HIV infection is a global health problem with millions of deaths over decades since its discovery. It is associated to a significant mortality and morbidity on populations whatever their origin or ethnic group but, low income countries like those of Sub-Saharan Africa are more affected. HIV is a great killer, and the most important therapeutic option nowadays is antiretroviral therapy (ART). Thus, the arrival and accessibility to antiretroviral drugs have reduced the mortality and improve the quality of life of HIV patients. However, their usages are more and more threatened with the rising of HIV resistance to ART HIV resistance to ART is an emergent and urgent problem because of its potential negative impact on public health and economy. World Health Organization (WHO) and Centers for Disease Control (CDC) have previously identified key points in order to fight against antimicrobial resistance including HIV's one. Two of them are: (1) "Optimize the use of antimicrobial medicines in human and animal health"; (2) "Develop the economic case for sustainable investment that takes account of the needs of all countries, and increase investment in new medicines, diagnostic tools, vaccines and other interventions". There is therefore a need for updated strategies to fight against this emergent problem, that should be adapted in the context of Sub-Saharan African countries where resources are limited.

Recent studies highlight the negative impact of systematic treatment using national ART protocol on the rising of HIV resistance to ART. In fact, the

"Test and Treat" strategy do not allow practitioners to identify systematically upon the diagnosis of HIV infection, if there is a resistance or not. This protocol therefore would impact first on to the selection of resistant HIV strain which were not identified before treatment and secondly, we could assist at long term to a reducing of the activity of anti-retroviral drug. It is true that few data exist to understand the burden of ART resistance in Sub-Saharan African infected with HIV. In a context of limited resources, systematic genotyping and identification of resistance at the discovery of the infection will be considered to be expensive. However, apart from the associated mortality and morbidity, the development of new ART resistance would also have a negative impact on the economy. This constitute therefore a challenge for Sub-Saharan African countries who have both poor resources and favorable circumstances for the development of HIV resistance to ART.

If the prevention in the development of HIV resistance to ART is a priority in the management of HIV epidemics, there is therefore a need for Sub-Saharan African countries who have the greatest prevalence of HIV infection, to develop personalized strategies in order to reduce the rising of ART resistance. The first requirements are to increase knowledge about ART resistance and evaluate its molecular epidemiology, improve diagnostic tools and surveillance of ART resistance, and analyze the relative impact of the "Test and Treat" strategy on the occurrence of ART resistance. This could lead to the adoption of an individualized ART protocol to succeed the current management strategy for Sub-Saharan African countries.

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