ABSTRACT

HIV/AIDS is a public health emergency in Malawi, a small country in sub-Saharan Africa. Administration of effective antiretroviral (ARV) therapy, which can be problematic in any geographic area, brings particular challenges in this part of the world, where few patients have access to ARV and few physicians are qualified to provide adequate care and monitor patients' viral loads and adherence to complicated drug regimens.

More than 20 years ago, Malawi implemented a successful program to reduce mortality and morbidity associated with tuberculosis (TB), which is the main opportunistic infection of HIV (approximately 70% of patients with TB in Malawi are co-infected with HIV).

Malawi plans to implement a joint TB/ARV program, which would target many of the same patients currently reached by independent TB and HIV/AIDS programs. Combining the learning experiences gained from the treatment of both these diseases is more likely to result in significant public health gains. Therefore, using lessons learned from its TB control program, a program successfully implemented for more than 20 years, Malawi is planning to implement a joint TB/ARV program.

The objectives of the HIV/AIDS arm of the program would be similar to that of the TB program. Government commitment will be needed, as supervision is essential for compliance and to effect positive virologic outcomes.

(Depending upon one's geographic location, the issues surrounding antiretroviral therapy (ART) may vary greatly. Malawi, a small country in sub-Saharan Africa, shares with neighboring countries problems associated with poverty, patterns of HIV illness, and lack of resources. HIV/AIDS is a public health emergency in Malawi, where HIV has dramatically fueled the TB epidemic. Approximately 70% of patients with TB in Malawi are co-infected with HIV. Until recently, the problems associated with HIV and TB have been approached separately; however, it has become apparent that combining the learning experiences gained from the treatment of both these diseases is more likely to result in significant public health gains. Therefore, using lessons learned from its TB control program, a program successfully implemented for more than 20 years, Malawi is planning to implement a joint TB/ARV program.

Approximately 70% of the 33.6 million HIV/AIDS patients worldwide live in sub-Saharan Africa, where 80% of the 3 million annual HIV/AIDS-related deaths occur. Previous HIV control strategies have proven ineffective, in part owing to poor counseling services and substandard clinical care. The resulting problems are myriad: (1) few patients have access to ART; (2) few physicians are qualified to provide adequate care and monitor patients' viral loads and adherence to complicated drug regimens; (3) drug interactions and toxicity may occur as a result of concomitant TB treatment; and (4) theft of drugs remains a problem. Additionally, continued unregulated access to drugs can result in resistant viral strains.

The current TB control program seeks to reduce mortality, morbidity, and therefore, transmission of TB.

*This article is based in part on a presentation given by Dr Salaniponi at the 1st International AIDS Society Conference on HIV Pathogenesis and Treatment.

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A typical control package requires the means to detect cases of TB, laboratory testing facilities, the ability to implement directly observed therapy (studies comparing self-administered therapy with directly observed therapy have illustrated that supervision is essential for compliance and to effect positive virologic outcomes\(^1\)), a regular drug supply and monitoring system for short-course therapy, and continued government commitment to the program. The goal has been to detect up to 70% of cases and provide cures for up to 75% of smear-positive patients. Chemotherapy is provided to all sputum smear-positive patients.

The objectives of the HIV/AIDS program would be similar to the TB program, ie, to reduce mortality, morbidity, and transmission of HIV by providing continuous treatment, but in this case, seeking to increase adherence rates to levels \(\geq 90\)%.

Chemotherapy is provided to all sputum smear-positive patients.

The A\hspace{0.2cm}IDS Ministry of Health that subsidized ARV drugs and provided laboratory monitoring services to 422 ARV-naïve and 222 ARV-experienced patients was begun in Côte d’Ivoire in 1998. 60% of patients were prescribed nucleoside reverse transcriptase inhibitors (NRTIs) consisting of zidovudine and didanosine; 40% were prescribed highly active antiretroviral therapy (HAART) comprised of zidovudine plus lamivudine plus indinavir. Approximately 71% of patients remained on active ART; 19% were lost to follow-up; 7% died; and only 2% stopped ART. This initiative demonstrated that the use of ART was feasible in developing countries.

**A Model for Implementing a Joint TB/ARV Program**

TB is the main opportunistic infection of HIV infection in Malawi, therefore, a joint TB/ARV program could be established by implementing the following steps.

- Establish a central unit overseen by a project manager and 2 assistants: 1 to oversee national tuberculosis control (NTP) and 1 to oversee ARV issues
- Prepare a joint NTP/ARV program manual that would be updated regularly
- Develop a recording and reporting system to register case detection, treatment, and follow-up treatment
- Train NTP/ARV coordinators to manage the individual treatment units, appointing 2 coordinators per unit: 1 to manage HIV-related complications and 1 to register, record, and report cases of TB and patients on ART. All coordinators would oversee patient education, provide security, place drug orders, and offer HIV counseling
- Establish volunteer-staffed HIV counseling and testing services using counselors who have experience in accessing ART. Volunteers would be subject to ongoing quality control of their HIV-testing procedures
- Establish TB/ARV treatment units with a plan for nationwide coverage. Initially, the teams would operate on several levels: central, district, and mission hospitals
- Secure a regular supply of ARVs and diagnostic materials. Kits would be procured from a central location and a rigorous system of drug monitoring would be effected to safeguard the ARVs and prevent their misuse or misappropriation
- Design a plan for supervision of units. A standard procedure should be used to gather information on a quarterly basis in order to maintain data for case detection and patient follow-up
- Prepare a program development plan with a reporting mechanism. It is important to identify sources of funding and to establish a program budget and long-term donor support. A pilot program may be enacted to ensure safe, well-tolerated ART and to test the feasibility of ART at
The plan should delineate strict criteria for including HIV-infected patients in the program.

The TB control program in Malawi provided the experience necessary for us to develop a structure for implementing ART safely and effectively and to provide optimal patient care. Program administrators have not yet decided who should be permitted to hold and dispense ARV drugs—private pharmacies or practitioners; a media campaign designed to alert the public to the dangers of unregulated ARV use is currently under way. An ARV program such as the one described is urgently needed in Malawi and other sub-Saharan countries. This type of program would introduce an advanced level of care for HIV/AIDS patients in these regions of Africa, where access to drugs is one part of the problem and adequate care is rarely available. Adapting the model currently being used for TB control can lead to the implementation of a successful ARV program in Malawi and similarly situated countries.

REFERENCE