

Tuberculosis in Malaysia: Combating the old Nemesis

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The disease is ancient. The cure, a half-century-old. The national control program (NTP) is celebrating its 43rd anniversary this year and yet, this year will see more Malaysians die of TB (Tuberculosis) than any other infectious disease. The number of TB cases in Malaysia for the years 2000, 2001 and 2002 are 15,643, 14,820 and 14,389 respectively with the mean mortality rate of 6.2/100,000 population. In the year 2002 alone, we had 1035 deaths directly due to tuberculosis.

As in other developed and industrialized countries, in Malaysia, the tuberculosis problem declined significantly between 1970 and 1990. Factors that have been credited with this reduction in tuberculosis incidence include improvements in nutrition and housing, better ventilation of homes and work sites, improved health set up, the inception of the National Tuberculosis Control program in 1961 and with that, the isolation of highly infectious tuberculosis cases in sanatoria.

However, from early 1995 till 2002 the incidence of tuberculosis slowly increased with an incidence rate of 59.8 in 1994, 58 in 1995 slowly raising to 65.6 in year 1999 and 65.9 in year 2000. In 2001 according to B. Venugopalan in his paper, the state of Selangor notified 1,459 cases (I.R. 43.1/100,000) as compared to 31.2/100,000 in 1995.¹ The Selangor figure is one of the lowest in the country while the highest is Sabah with an incidence rate of 120/100,000.

Several forces, often interrelated, were behind TB's resurgence. They are firstly, the HIV/AIDS infection, as people with HIV are particularly vulnerable to turn infection with *M. tuberculosis* into active TB and are also

more sensitive to developing active TB when they are first infected with the TB germ. Secondly the increase is due to in immigration from endemic neighboring countries, increases in urban migration and drug abuse. The reorganization of the National control program from a vertical to horizontal program and the sense of security that TB was under-controlled that lead to complacency are the other two major factors.

The HIV epidemic heightens the need to focus on the identification and cure of infectious TB patients. The National Tuberculosis Control Program's present policy states that all confirmed TB cases must be screened for HIV, and vice versa is encouraged among high-risk groups. The latter are the institutionalized groups such as inmates of prison and rehabilitation centers. Confidential counseling is essential before and after HIV antibody testing in this group of patients. Year 2002 saw more than 90% of TB patients screened for HIV. In 1990 there were only 6 cases of TB co-infection with HIV cases reported among the 10,873 TB cases, but in 2002 the number had escalated to 933 cases or 6.5% of the total number of 14,389. There is a sudden and shocking increase of 187 cases (25%) when compared to the 2001 report, but with better and improved management of HIV cases, death due to TB/HIV remains static.

Though the increase in immigration of workers from endemic neighboring countries, was said to be one of the reasons for the increase, but it was only seen in the early 1990s. With stricter control by FOMEMA and the national policy of sending the infected patients back to their original countries after initiation of treatments, from year 1999 onwards the percentage of cases continue to decrease from 14.2% in 1995 to 10% in year

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2002. It is hoped that with the new strategies and the implementation of the Ministry of Health TB control division's 5-year plan to combat the disease, soon we will be able to see the second decline of the TB problem.

DOTS (directly observed treatment, short course) is the most effective treatment strategy available for controlling TB and one of the most rapidly expanding and successful health interventions of the 1990s. DOTS was developed from the collective best practices, clinical trials and programmatic operations of TB control over the past two decades. The success of the strategy has been proven in both rich and poor countries. In Malaysia, DOTS was absorbed in the national control program in the late 90s. Its five critical elements work together to cure infectious patients and break the cycle of transmission. The five elements of DOTS are: Government commitment to sustained TB control, Sputum smear microscopy to detect infectious cases, a standardized, short-course anti-TB treatment regimen of six to eight months, with direct observation of treatment for at least the initial two months regular, uninterrupted supply of quality anti-TB drugs and monitoring and reporting system to evaluate treatment outcomes for each patient diagnosed and the performance of the TB control program as a whole.

It is often said that the undiagnosed case is the one most likely to transmit infection remains useful in establishing priorities for TB control. With that in mind, NTP (National Tuberculosis control Program) of Malaysia divides the implementation of combat strategies into a hierarchy of four approaches. Early diagnosis, effective treatment, close follow-up and preventive measures. The cheapest and the most easily assessable and highly specific method of diagnosis is by sputum AFB, thus its highlighted role in DOTS.

One reason that TB control failed so dramatically during the AIDS epidemic was the relative non specificity of TB symptoms in this population. Dr Ismail, in his paper mentions about the atypical clinical features of his patients (232 patients) that account for the delay in diagnosis². A practical approach might be for clinicians to continue isolation for patients who have initial AFB-negative sputum smears but compelling clinical symptoms and chest X-rays. The use of genetic-based tests to diagnose TB may improve diagnostic sensitivity but is of little use in routine infection control practice. The chest radiograph is notoriously insensitive as a TB screening tool. Up to 10% of persons with pulmonary TB may have an initially normal chest X-ray, and Dr

Ismail cited 38% 'not typical' radiological TB features in his study patients. Although computed tomography is sensitive in identifying many abnormalities, routine chest tomography in patients with potential pulmonary disease is not practical.

Other advantages of DOTS are it can produce cure rates of up to 95 percent as shown in more than 85% of the countries practicing it, even in the poorest countries. The strategy can be integrated successfully within existing the general health services of our country, to achieve widespread coverage. Trained health workers and community volunteers can administer treatment. DOTS does not require hospitalization or isolation in most cases, thus patients can remain with their families and return to work in a few weeks. DOTS helps prevent drug resistance, which is often fatal and up to 100 times more expensive to treat. The DOTS recording and monitoring system follows each patient through the entire course of treatment to ensure a cure. As a management strategy, DOTS helps TB health officials monitor program performance and quickly intervene to address problems.

DOTS recommends a standardized, short-course anti-TB treatment regimen of six to eight months using 3-4 anti tuberculosis drugs, with direct observation of treatment for at least the initial two months. The following principles are critical now to ensure success, though some were not recommended before. Drug-susceptibility studies are to be performed on all isolates of *Mycobacterium tuberculosis* and regimen and treatment duration selected on the basis of results. Susceptibility testing is repeated whenever clinical worsening occurs or new drug resistance is suspected, a single should never be added to a failing regimen. All patients with suspected or proven active TB are isolated until the disease is excluded or effective therapy has been initiated. HIV testing is performed in all newly diagnosed cases. Patients are monitored for adverse drug effects and drug interactions and the specialist is consulted early, especially in cases of multi-drug resistant (MDR) TB, pregnancy, and HIV infection. ARM Fauzi and colleagues reported in their prospective survey on 14 cases of TB drug-induced hepatitis that lower body mass index, lower serum albumin and higher serum globulin are risk factors for developing the complication.³

As another strong weapon to combat the infection, to provide a simple approach to delivering the correct number of drugs at the correct dosages, fixed dose

combination (FDC) formulations are being considered now to be used in the public chest clinics in Malaysia. By using FDCs, there will be improved compliance but monotherapy is prevented; consequently the risk for selection of drug resistant bacilli is reduced. MDRTB (Multi-drugs resistant TB) refers to *M tuberculosis* that is resistant to at least two drugs, isoniazid and rifampin. The most common cause of emergence of drug resistance is previous inadequate or incomplete treatment. Fortunately, Malaysia reported only about 1% incidence of MDR. Consultation with an experienced specialist should be considered for management of these cases.

Nosocomial tuberculosis especially involving healthcare workers is on the rise and better infection control is required. Providing rooms with negative-pressure ventilation for sputum positive especially MDRTB patient was a formidable task and maintaining these

rooms is difficult. Other engineering controls such as UV light may be more useful. Innovative studies are ongoing to define optimal aerodynamics and ventilation and establish (or exclude) the role of UV light in TB control. Personal Protective Equipment (PPE) N-95 particulate respirator was agreed upon and is now widely used though this is not readily practiced in Malaysia. Many infection control programs lost a degree of credibility and good will in hospitals where clinicians resisted accepting uncomfortable masks. New hospitals are being built and extra wards renovated in our country to handle infectious diseases. With development of a hospital-wide TB control plan, and engineering controls, which focus on how best to handle air, including negative pressure capability in isolation rooms, placement of UV light fixtures, and installation of HEPA filters, we hope the lingering battle against tuberculosis will finally be won.

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