DOTS Therapy for Tuberculosis

JV Pai-Dhungat

“Stop TB. Use DOTS” is a catchphrase worldwide today. The advent of chemotherapy in the late 1940s and early 1950s transformed the treatment of tuberculosis by hastening the closure of sanatoria, and eliminated long-term hospitalizations in the management of TB. Non-availability of hospital beds made ambulatory care the only viable option. However, relapses and drug resistance were common as treatment was stopped within a few months after patient got relief from severe symptoms. The credit for DOTS (Directly Observed Treatment Short course) protocol and its success is given to Karel Stablo of International Union against Tuberculosis and Lung Diseases, but it really started with MRC trials in Madras and Hong Kong five decades ago.

Karel Stablo graduated in Medicine and joined John Crofton at the University of Edinburgh (1950). At that time Crofton was tasked to bring the rampant tuberculosis under control in Scotland. With the help of his protégé Stablo, he started the treatment with multiple anti-TB drugs combination, which proved to be a big success (1960), but the need for prolonged therapy and adherence to treatment was a problem. Stablo worked out steps for DOTS to help elimination of TB. The experience in Scotland honed Stablo’s confidence further to eradicate TB. His first opportunity to test DOTS on large scale came in Tanzania (1978). The results were stunning and cure rates soared from 40% to 80%. After the success of TB control trials in China (1989), it was accepted by WHO and implemented worldwide.

Directly observed therapy in all TB patients started in late 50s as a result of work in Madras and Hong Kong. MRC study in Madras-India sought to compare ambulatory and sanatorium based drug therapy. Analysis was first published in 1958 by W. Fox, A.S. Moodie, and Indian co-workers. They underlined the irregularity and noncompliance that had been a problem throughout the course of treatment. W. Fox began an examination of potential efficacy of supervised therapy in Madras. Despite the fact that these patients came from poverty-stricken community in a city with poor transport system, it was possible to get them to come to the clinic 6 days a week for supervised streptomycin injections and oral dose of medications. More importantly in early 1960s he began to explore the possibility of moving away from daily doses of medication to intermittent therapy. He found that intermittent approach could indeed be effective. The insights gained in Madras were critical in tuberculosis control. The fear of the infection becoming untreatable and posing grave danger to society, led to the acceptance of DOTS in March 1997. WHO announced “DOTS was the biggest health breakthrough of the decade”. There has been a steady global acceptance of DOTS for TB control over subsequent decades. Since 1995, 41 million people have been successfully treated through this ‘Stop TB’ strategy.

Despite this achievement, in many long and complex, decade old TB cases, interrupted, erratic therapy has undermined the efforts to control the global TB epidemic. Worrying spread of MDR TB has emerged with its direct man to man transmission, posing ominous threat to society. As quoted by Rene’ and Dubos (1952), “The equilibrium between man and the tubercle bacillus is very precarious. If war can so rapidly upset it, other unforeseen events might also cause recurrences of the tuberculosis epidemic in the western world”. Today we are witnessing this dangerous tilt. Great optimism and strong will are required to counter