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Editorial



Tuberculosis in Africa: Where do we go?

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Tuberculosis (TB) is today the single leading cause of death from any single infectious agent and has continued to be a major public health problem all over the world. Depending on the prevailing social factors such as socio-economic status, malnutrition, crowded living conditions, incidence of HIV/AIDS, level of development of health infrastructures, quality of available control programmes and degree of drug resistance to antituberculous agents, the prevalence, patterns of presentation and mortality from the disease vary from one country to another and from one region of a country to another [1]. Despite the various approaches adopted to stem the disease, including Directly Observed Short Course and Stop TB programme, TB continues to be a major public health problem, particularly in developing countries [2]. Among the different reasons, the emergence of drug-resistance has added a major dimension to the associated HIV/AIDS epidemic which is increasing the incidence, prevalence and death rates associated with the disease. Resistance to anti-TB drugs occurs primarily due to poorly managed TB care often due to incorrect drug prescribing practices by providers, poor quality drugs or erratic supply of drugs, and patient non-adherence, among others [3].

Multidrug Resistant TB (MDR-TB) is used to describe strains of tuberculosis that are resistant to at least the two main first-line TB drugs (isoniazid and rifampicin). In September 2006, the World Health Organization (WHO) expressed concern over the emergence of virulent drug-resistant strains of TB following research studies showing the extent of Extensive Drug Resistant TB (XDR-TB), a newly identified TB threat which leaves patients (including many people living with HIV) virtually untreatable with available anti-TB drugs [3]. XDR-TB is MDR-TB that is also resistant to three or more of the six classes of second-line drugs (MDR-TB and XDR-TB are together defined as M/XDR-TB).

Although the data on drug resistance to TB in Africa are scarce, there are indications that the population prevalence of drug resistant TB appears to be low compared to Eastern Europe and Asia. The first explanation for the low prevalence is the presence of well-functioning control programmes in Africa. A second explanation is that rifampicin was only recently introduced in Africa on a large scale and there appears to have been relatively little time for resistance to develop [4]. Analysis of data from 39 countries has revealed that there is no correlation between high MDR rates and TB incidence, HIV/TB

co-infection rates, or year of introduction of rifampicin but retreatment failure rate is the likely most predictive indicator for MDR [4]. Nevertheless, when the underlying HIV epidemic is considered, drug-resistant TB in Africa could have a severe impact on the disease burden in the region. It is in this respect that Health Ministers from 27 African countries, representatives from international health and aid agencies, as well as non-governmental organization met agreed on a series of actions to tackle the epidemic [3,5]. The action plans include:

- a) Movement towards universal access to M/XDR-TB diagnosis and treatment by 2015;
- b) Removal of financial barriers to TB care;
- c) Development of comprehensive M/XDR-TB management and care framework;
- d) Deployment of sufficient and trained staff;
- e) Strengthening of laboratory system;
- f) Collaboration with all partners;
- g) Development and implementation of air-borne infection control policies;
- h) Regulation of the supply of sufficient supply of high-quality anti-TB medicines;
- i) Inclusion of advocacy and communication of social mobilization in policies and plans; and
- j) Development of new tools to combat M/XDR-TB [5].

While effective control of TB depends on appropriate use of medications, the potential of herbs and vitamins to combat TB is being investigated by many researchers. *Echinacea* spp. (Echinacea), *Tinospora cordifolia* (Tamarisk), *Inula helenium* (Elecampane), *Berberis vulgaris* (TB Barberry) and *Rudbeckia subtomentosa* (Sweet coneflower) are some herbs that may be useful in TB [6]. Patients at risk for vitamin deficiency (malnourished, alcoholics, elderly, pregnant and nursing mothers) or for nerve degeneration (those with diabetes, HIV, or chronic kidney failure) may need

vitamin B₆. Recent studies suggest that a diet deficient in certain nutrients such as proteins, zinc, vitamins B₁₂, C and D may be linked to poor response to TB, especially among the elderly, children, alcoholics, the homeless, and HIV-infected individuals. There are also preclinical studies that suggest that TB may be more severe in persons with diets rich in omega-3 essential fatty acids compared to those rich in omega-6 essential fatty acids. Omega-3 fatty acids appear to impair the animals' immune systems, diminishing the ability to kill certain organisms including *M. tuberculosis* [6].

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