

Tuberculosis – an epidemic of injustice

Along the way of justice there is life

Proverbs of Solomon, 12:28

The World Health Organization (WHO) has suggested that March 24th of each year should be designated 'World TB Day', to mark the anniversary of the discovery of *Mycobacterium tuberculosis* by Robert Koch in 1882¹. The reason for focusing attention on tuberculosis is that few people are aware of the serious threat that this disease poses to the health of the human population worldwide. Indeed, the situation is so threatening that in 1993, the WHO took the unprecedented step of declaring tuberculosis a global emergency².

One person in three throughout the world has been infected with the tubercle bacillus and is at risk of developing the disease at some future period in their life³. Each year, around 100 million people become infected. Of these, the number actually developing the disease is around 10 million and about three million die. Tuberculosis is a chronic disease; as many as 20 million people may have the disease at any given time, and many of them are infectious. Tuberculosis is responsible for one in seven adult deaths and one in four preventable adult deaths worldwide, and among children the disease is now an important cause of morbidity and mortality⁴. Nobody is safe from the threat – if the bacillus is in the air it can be inhaled, irrespective of whether it is in the air of a village hut or a palace.

The tragedy of tuberculosis is that although highly effective therapy has been available for many years, there are currently more people with the disease than at any previous period of human history. Unless there are major changes globally in the management of the disease, the numbers will certainly increase further. What makes this situation particularly tragic is that tuberculosis is among the most cost-effective of all diseases to treat^{5,6}. A six-month course of anti-TB drugs costing only £18 sterling could give a patient the opportunity to live a healthy and productive life and avoid a slow and painful death. Curing one infectious patient prevents several others from being infected.

It is evident from the fact that we are now witnessing the highest ever prevalence of tuberculosis that, despite the undoubted triumphs of modern medical science, our attempts to conquer, or even constrain,

the disease have failed³ and that, through grossly inadequate use of the powerful tools at our disposal, we have missed the opportunity to take a significant step towards controlling this disease.

In recent years, two serious problems have arisen that threaten the eventual conquest of tuberculosis: the human immunodeficiency virus (HIV) pandemic and multi-drug resistance. Infection by HIV greatly increases the risk of developing tuberculosis; at present around 10% of patients worldwide with tuberculosis are HIV-positive, and this percentage is rising daily⁶⁻⁸. Although tuberculosis is undoubtedly one of the most prevalent of the HIV-related diseases, often occurring early in the course of HIV infection, it receives little serious attention in comparison to less common, and often non-transmissible, complications.

Multi-drug resistant tuberculosis has arisen in both developed and developing countries as a result of poor medical services, a lack of supervised administration of the drugs and their unregulated over-the-counter sales⁹⁻¹¹. The present day armamentarium against tuberculosis is composed of about 12 drugs. Four of these, the first line drugs rifampicin, isoniazid, pyrazinamide and ethambutol, are highly effective and of comparatively low toxicity. The other drugs, required when resistance to the former has developed, are much less effective and more toxic. They are also much more costly and must be given for extended periods under close supervision¹¹. It is likely that new powerful drugs will be found but there is no guarantee of this; certainly, no drug more effective than rifampicin has been developed since its introduction over 25 years ago. It is also likely that there is a finite number of possible drugs, or classes of drugs, that are lethal to the tubercle bacillus while leaving humans unscathed. What is extremely worrying is the short time period, a mere two decades, over which multi-drug resistance has emerged.

Unless there is a global re-evaluation of the control and use of the available drugs, the nightmare of a widespread epidemic of untreatable tuberculosis could become a reality. Any re-evaluation must focus on a holistic approach to the disease with attention to both worldwide and national provision of high quality care and to the fears and attitudes of the patients and their communities¹²⁻¹⁵. Recent experience has shown that the relationship between the patient and care provider is crucial to the outcome of treatment, with the best results being obtained when all doses of the drugs are taken under the supervision of a concerned and responsible person. For control measures to succeed, there must be a regular supply of good quality drugs at no cost to the patient. Sadly, only one in four patients worldwide has access to well organised health services.

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There is no doubt that the 6-month courses of therapy recommended by WHO are able to cure up to 98% of patients with uncomplicated, drug-susceptible tuberculosis, provided that the patient takes a full course of effective drugs¹⁶. There is likewise no doubt that tuberculosis control worldwide has been largely unsuccessful as a result of the common failure of patients to complete the prescribed treatment; ever since Hippocrates drew attention to the problem of non-compliance, this has proved to be the biggest barrier to effective therapy of many diseases. Thus the direct supervision of every dose is likely greatly to improve the control of the disease. The strategy of Directly Observed Therapy, Short Course (DOTS), advocated by WHO¹⁷, could save a million lives per year if properly and widely applied. As there are around 10 million new cases of tuberculosis annually^{2,3} the cost of implementing a worldwide DOTS strategy will be high in terms of the budgets of developing countries, but miniscule compared to expenditure on military hardware by more developed countries (for *one* year the cost would approximate that required for the purchase of one military jet fighter; for *twenty* years it would be that required to purchase one advanced 'stealth' fighter aircraft).

Unfortunately, advocating the DOTS strategy as the means of conquering tuberculosis will have little effect unless a number of serious problems are addressed:

- 1 Tuberculosis must be diagnosed before therapy is given, and this is no straightforward matter. In many regions even simple microscopical services are inadequate or unavailable.
- 2 Although the patient is usually blamed for non-compliance, the fault often lies with the health-care provider who fails to ensure that adequate and regular supplies of good quality drugs are freely available at the point of delivery. Serious problems have been encountered in obtaining uninterrupted supplies of such drugs and in avoiding purchase of poorly formulated, time-expired or even counterfeit preparations.
- 3 The success of DOTS materially depends on the dedication and integrity of the supervisors, which cannot always be guaranteed¹⁸. It also depends on the prescription of an effective drug regimen. Studies in several countries have revealed widely varying prescribing practices, with many patients receiving expensive regimens of limited efficacy¹⁹.
- 4 The successful implementation of DOTS, or any other therapeutic strategy, will require careful consideration of local anthropological factors including belief patterns such as the concept of stigma, gender issues and trust in the health-care system. Even where 'official' tuberculosis clinics exist, patients may turn to private practitioners or even traditional healers^{12,19}. This leads to delay in instituting effective therapy and the inevitable spread of the disease in the community. In addition, the association between HIV and tuberculosis has imposed a stigma on the latter disease which, in some regions, compromises its detection and patients' adherence to therapy.
- 5 The funding currently available for TB programmes throughout the developing world is grossly inadequate. The sad fact is that the global community, which is only too ready to pay lip service to the problem of tuberculosis, recoils when called upon to contribute to the cost of the necessary control and treatment measures. Relative to other major global health problems such as malaria, AIDS and leprosy, tuberculosis control remains underfunded. The WHO has calculated that with the continued low level of interest and support, the annual number of deaths from tuberculosis will reach 4 million by the year 2004. With appropriate funding, this number could be cut to 1.6 million².

While there is no doubt that the DOTS strategy has proved successful in a number of well organised and funded campaigns, its widespread adoption will require close financial and technical cooperation between the industrially developed rich nations, which have a mere 5% of the global burden of tuberculosis, and the developing poorer nations, which have 95% of the burden. In this respect, there are great steps that the wealthy nations could take. Humankind will soon be at the beginning of a new millennium and a number of grandiose and extravagant plans for celebrating this occasion have been proposed in the UK and elsewhere. But what greater way could there be of celebrating the 2000th anniversary of the birth of a man who influenced the whole world with his teachings of love, self sacrifice and justice than to cancel the burdensome interest rates payable by the poorer nations on loans from the wealthier ones and to divert some monies from the production of military hardware into health sector aid for developing nations? In this context, WHO's statement that 'The growing tuberculosis epidemic is no longer an emergency only for those who care about health, but for those who care about justice'² becomes all the more appropriate.

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1998 PHLS/BTS/DH* National Survey of Tuberculosis in England and Wales

The Public Health Laboratory Service (PHLS) Communicable Disease Surveillance Centre (CDSC) is co-ordinating the 1998 National Survey of Tuberculosis in England and Wales, in collaboration with the British Thoracic Society and the Department of Health. Unlike previous surveys, patients of all ages diagnosed with tuberculosis between 1 January and 31 December 1998 (inclusive) and notified to the local Consultants in Communicable Disease Control (CCDCs) will be included. In addition, efforts will be made to ascertain other cases of tuberculosis which are diagnosed in the survey period, but not notified. Information about the survey has been sent to all chest physicians with an interest in respiratory medicine. However, the Steering Committee would like the survey brought to the attention of all doctors who might diagnose a case of tuberculosis.

Further information about the survey can be obtained from

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