THE CHANGING FACE OF TUBERCULOSIS: A NEW CHALLENGE TO THE DEVELOPING WORLD

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Introduction

The modern era of tuberculosis began in the mid 1980s. At that time it was realised that tuberculosis had not only ceased to decline in many developed countries, notably the USA, but was actually increasing. This forced health services to look more closely at the problem of tuberculosis. It was realised that the disease was out of control across most of the poorest regions of the world, especially Central Africa and South Asia. It was for this reason that in 1993 the WHO took the unique step of declaring tuberculosis to be a world emergency. [1.]

Despite this intervention cases of tuberculosis are set to increase globally for the foreseeable future. One third of the world population, two billion people are infected with the tubercle bacillus It is estimated that deaths from tuberculosis will increase from 3 million a year currently to five million by the year 2050. There are four principal reasons for this.

Demographic changes.

The highest incidence of tuberculosis across the globe are in central Africa where death rates exceed 200/100,000 a year and Southern Asia, particularly India, where death rates are between 100and 200/100,000 a year. [2]. It is in exactly these areas of the globe where the population increase is known to be most rapid. For example the population of India is estimated to increase by 75% in the next 30 years and the population of some Central African Countries such as Malawi by 150%. The demographic increase alone will account for 75% of the increase in cases over the next decade. Though family planning will obviously improve the situation there is little likelihood of making inroads into the projected population increase in the next decade.

The menace of HIV/AIDS

It is known that confection with HIV increases the risk of tuberculosis infection developing into disease by a 100 fold. The lifetime risk of about 10% of infection developing into disease in the individual infected with TB alone becomes an annual risk of 10% in the dually infected person.

In parts of Africa the lifetime risk of dying from AIDS is 50%. [3] Tuberculosis is the commonest cause of death in these individuals. The epidemic has overwhelmed the health services in all sub-Saharan African countries. Tuberculosis causes more maternal deaths than all other causes of maternal death put together. Mortality in dually infected patients is as high as 50% in 18 months in some series.[4]

The danger is that HIV infection will spread across Asia as rapidly as it has done across Africa, where the great majority of the world populations reside. HIV infection in parts of India and Thailand is already reaching epidemic proportions.

The increase of the world's poor

The association between poverty and tuberculosis is well established. Even within the developed world the highest rates of disease are seen in the poorest sections of the community.[5] As the world population increases in some of the poorest areas of the world so the number of people living in poverty has increased. In the last fifteen years the number of people living on less than a dollar a day (the definition of absolute poverty) has increased from three quarters to one and a third billion. More than three-quarters of these are women. The proportion of the world's wealth owned by the richest 20% has increased from 65% to over 85% in the same time period.

Though we do not have hard data to show that TB increases as poverty increases common sense tells us that it does.

The closure of anti-tuberculosis programmes

The overwhelming problem with the treatment of tuberculosis is that cure takes 6 months of treatment. The great majority of people suffering from TB have amongst the poorest health care facilities in the world. The great majorities do not therefore complete their treatment. Premature cessation of treatment will result in relapse and possibly the emergence of drug resistance. Programmes to ensure that all patients received adequate supplies of good quality drugs effectively broke down in many countries by the 1980s. Very belatedly new programmes are being geared up but the resources needed are often beyond the scope of the countries and communities that are worst affected.

Multi-drug resistant tuberculosis

Multidrug resistant tuberculosis (MDRTB), that is the presence of bacteria resistant to at least isoniazid and rifampicin, is increasing world-wide.[6] This renders the patient extremely difficult to treat. Therapy may need to be prolonged for up to two years compared with the standard regimen for tuberculosis of six months. Using second line (reserve drugs) is difficult and expensive, as adverse effects are common. Some parts of the world have rates of drug resistance of almost 50% of cases, notably Latvia. In some Russian prisons the majority of cases are drug resistant. Inmates on treatment for drug susceptible strains have been infected with a drug resistant strain from a fellow inmate.

Immigration: the developed world's problem

Within the developed world immigration is the greatest factor contributing to the increase in cases. In England 60% of cases are in ethnic minority groups, which comprise only 5% of the population. Of these individuals from the Indian Subcontinent form the majority. For the last two years I have had no less than two Indian doctors on treatment for TB at any time. In should however, be remembered that tuberculosis was a disease which killed one in four people in Western Europe 200 years ago and was effectively exported to what is now the developing world through trade and Empire building. There is occurring a reimportation of disease with migration for economic or political reasons.[7]

Within the developing world migration is also playing a part for example refugees from Somalia in Kenya or from Afghanistan in Pakistan.

Indifference: the greatest barrier to TB control

A major factor contributing to the global indifference to tuberculosis is because it is predominantly a disease of the poor and destitute. There is a belief that tuberculosis is primarily a social rather than a medical issue. This is erroneous as even in the poorest areas of the world a good TB programme can have an appreciable impact in the reduction of cases. There is evidence that health sector reforms may further deprive the poor of adequate medical care.[8]

The solution

The practical solution must concentrate on the completed correct treatment of the great majority of those suffering from tuberculosis, particularly those that are sputum smear positive. It is for this reason that the WHO are vigorously promoting the DOTS campaign.[9]

The current management of tuberculosis in many parts of the world is poor. Bangladesh, despite a huge caseload and poor resources is doing better than most. The patient with disease is put on treatment without sufficient bacteriological testing. The drugs may be bought in the market and be of poor quality. The regimen prescribed may be non-standard. There will be virtually no supervision of the patient to ensure compliance. The result is that the patient is not cured of disease and another half-treated patient burdens the community. Doctors who cannot treat tuberculosis properly should not treat tuberculosis at all.

Practical management

Doctors treating tuberculosis should ideally be part of the public health system. They should have access to first class bacteriological services providing excellent sputum smear identification. They must have good quality drugs and should make sure that the patient receives the drugs under direct supervision. This is best provided by the patient attending a local clinic for three times weekly observed therapy. Rifampicin should always be given in a combination tablet with isoniazid to prevent monotherapy resulting in the emergence of drug resistance. Meticulous care must be taken over record keeping. There should be a TB clinic register, which is kept up to date with each patient attendance. This must agree with a register kept in the bacteriological laboratory. There should be a separated record card for each patient, which is completed as the patient is seen to take the medication. Regular quarterly and annual returns should be made so that district services can know the incidence of disease on a regular basis and provide sufficient resources for the good management of tuberculosis within the area for which they are responsible.

Conclusions

Tuberculosis is out of control in many developing countries of the world. There is even a "knock on" effect so that through migration many developed countries are also experiencing an increase in cases. Though the reasons for this increase are multifactorial it is within the capability of the world to re-exert control providing that the political will is present. Current events would suggest that the situation will deteriorate further before the international community provides sufficient resources to regain the upper hand in the war against tuberculosis.

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