OPINION

A global health concern: Tuberculosis

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ABSTRACT

The human race has been afflicted by Tuberculosis (TB) for more than 4,000 years. It is a chronic illness that spreads from person to person through the air and is brought on by the bacteria Mycobacterium tuberculosis. Although TB often affects the lungs, it can also damage the brain, intestines, kidneys, or spine. The location of the TB germs in the body affects the TB symptoms. Pulmonary TB can manifest as symptoms including a persistent cough, chest pain, hemoptysis, weakness or weariness, weight loss, fever, and night sweats.

Key Words: *Tuberculosis; Pulmonary; Symptoms; Disease; Bacteria.*

INTRODUCTION

Bangladesh is one of the developing nations where TB is still one of the top causes of morbidity and mortality. It was anticipated that TB would decrease internationally with the development of chemotherapy in the 1940s and the adoption of the standardized short course in the 1980s. Although most developed countries showed a downward tendency, many developing nations did not show this. TB is the most common cause of mortality from a single source of infection among adults and accounts for around 7% of all fatalities in underdeveloped nations. It is the first infectious disease to be labelled a global health emergency by the World Health Organization (WHO). Globally, there were predicted to be 9.27 million incident cases of TB, 13.7 million prevalent cases, 1.32 million HIV-negative deaths from TB, and 0.45 million HIV-positive fatalities in 2007. 86% of all cases are found in just Asia and Africa. Among 22 nations with significant TB burdens, Bangladesh had the sixth-highest burden in 2007, with 353,000 new cases, 70,000 fatalities, and an incidence of 223/100,000 persons annually.

Directly-observed Therapy Short Course (DOTS) implementation has been a "breakthrough" in the fight against tuberculosis. It is now the cornerstone of tuberculosis treatment in many nations. Over time, both the number of nations and the DOTS coverage inside those nations have grown. With the implementation of DOTS during the past 15 years, nearly 35 million patients have been treated and 8 million fatalities have been avoided. Bangladesh began implementing DOTS in 1993, and the entire nation was eventually covered. Men are impacted more frequently than women. Males receive more case notices than females do in the majority of countries. In 2004, there were 1.4 million cases of smear-positive TB in men and 775,000 cases in women. The global TB case notification ratio for females to males is 0.47:0.67. There is no consensus on the causes of these gender disparities. These might be brought about by variations in infection prevalence, the speed at which an infection develops into an illness, the underreporting of female cases, or the accessibility of certain services. It is generally known that poverty and TB are related, and the poorest areas of the town had the greatest rates of the disease. Low-income individuals with minimal education and those who live in crowded conditions are more likely to develop tuberculosis. Poor nutrition brought on by poverty may change the way the immune system functions. On the other hand, poverty that results in crowded housing, inadequate ventilation, and poor hygiene practices is probably going to enhance the risk of TB transmission.

To better understand people's knowledge, attitudes, and practices around tuberculosis, numerous surveys have been done. According to a survey conducted in India, the majority of people (93%) had heard of TB, however only 20.5% of respondents had sufficient knowledge about the disease. In this edition of the Journal, that examined how people in Sabah, East Malaysia, sought medical attention for TB and how TB affected patients and their families. The author conducted interviews with TB patients and their relatives using qualitative research techniques. The majority of respondents (96%) were found to be ignorant of the cause of TB. The people's lifestyles were also impacted by TB. One of the main components in TB control is a better understanding of the prevalence of antibiotic resistance against tuberculosis. Increased tuberculosis morbidity and mortality result from drug resistance combined with other reasons. Globally, drug-resistant TB strains are spreading quickly. Not only has the global rate of MDR and XDR TB (extreme drug-resistant TB) increased alarmingly, according to the WHO. Such situations are much above

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the capabilities of any developing nation, both in terms of treatment and management. There were almost 0.5 million cases of MDR TB worldwide. In Bangladesh, the MDR rate is 3.5% for new cases and 20% for cases that have already received treatment.

The high (50% to 60%) mortality rate in MDR cases are frequently correlated with a brief course of the disease (4 weeks to 16 weeks). The development of MDR patients has been linked to a number of variables. Among these are non-adherence to therapy, the absence of directly observed treatment, restricted or interrupted drug supply, subpar drug quality, and widespread availability of anti-TB medications without a prescription, subpar medical management, and subpar national control initiatives. To properly prepare for the treatment of MDR cases and implement the DOTS-Plus approach, it is crucial to maintain the current MDR surveillance. To control MDR tuberculosis, government, non-government, and private groups must act quickly, together, and closely. Children with TB are challenging to diagnose. Additionally, sputum cannot be produced by young children. Children make up almost 10% of all new cases in high-burden areas, according to estimates. For the diagnosis of TB in children, a scoring system, clinical indicators, and symptoms have been used. Different diagnostic methods have been applied to improve kid diagnosis.

These include nucleic acid amplification, sero-diagnosis, and culture. The BCG vaccine is a common component of TB control programs in many nations. The BCG vaccine's preventive effectiveness against all TB forms is around 50%, but it was higher in situations of serious infection (64% in cases of tuberculosis meningitis and 78% in disseminated infection). New TB vaccinations are currently being developed. These vaccinations are now through various rounds of field testing in various nations. For the TB epidemic to be effectively controlled, particularly in developing nations, a number of issues must be resolved. These include the creation of a strong surveillance system, quick case detection, expansion of DOTS into hard-to-reach areas, reinforcement of DOTS in urban settings, provision of adequate staff and laboratory resources, participation of private practitioners, MDR case treatment facilities, detection of pediatric and extra pulmonary cases of TB, and efficient provider coordination. Additionally, HIV has an impact on the prevalence of TB; hence both diseases require strong control strategies.

It is necessary to conduct more research to advance diagnostics, create new medications and vaccines, create a simple yet effective regimen for treating HIV and TB at the same time, find ways to make programs more effective, better understand the connection between TB and chronic diseases like diabetes and smoking, and pinpoint social and behavioral factors that limit the detection of cases..

DISCUSSION

Even now, every three minutes, two people in India pass away from TB. Poor primary healthcare infrastructure in rural areas of many states, unregulated private health care leading to widespread irrational use of first- and second-line anti-TB drugs, the spread of HIV infection, poverty, a lack of political will, and, most importantly, corrupt administration are major obstacles to TB control in India. The National Rural Health Mission (NRHM), a reform initiative with the objective of enhancing primary healthcare in rural regions, and the NTCP are working together on this project. In addition, the NTCP has launched a number of efforts to enhance TB care in collaboration with the commercial sector and the Indian Medical Association (IMA). Surprisingly, TB is still perceived in India as a disease mostly affecting the underprivileged and those who reside in slums. The wealthy and well-off should be aware that their cooks, servants, and drivers may be asymptomatic carriers of this terrible disease inside of their mansions, and as a result, they risk contracting TB even without entering the slums. Given the strong evidence that bovine TB (Mycobacterium bovis), which affects cattle, can spread to people, consuming raw milk or dairy products manufactured from it is another possible source of TB for humans.

Drug resistance can be divided into two categories: primary and acquired. Primary resistance is defined as drug resistance in a patient who has never before received anti-TB medication. Resistance that has been acquired is a result of a particular prior treatment. The terms primary resistance and acquired resistance have now been replaced by the terms drug resistance and drug resistance among new patients, respectively, by WHO and the IUATLD. Drug resistance in TB patients is primarily the outcome of inadequate or failing TB control strategies. The following are some factors that contribute to the development of drug resistance: poor case holding, use of inferior drugs, insufficient or irregular drug supply, ignorance of medical professionals regarding the treatment and control of TB, interruption of chemotherapy due to side effects, non-adherence of patients to the recommended regimens, availability of anti-TB drugs without a prescription, illiteracy, and low socioeconomic status. There is a need for ongoing drug resistance research by a network of investigators in various parts of the country, using a common protocol with an emphasis on quality control, since the data that are currently available from India only cover a small portion of this enormous country. This research will serve as a useful parameter in the evaluation of current and previous chemotherapy programs.

Too accurately estimate the burden of all TB types (childhood, HIV/TB, MDR-TB), we must significantly expand our surveillance efforts in order to step up our fight against this devastating illness. The rational application of first- and second-line anti-TB medications must be strictly regulated. They should never be offered for sale as OTC medications. Local governments should make sincere efforts to support local manufacturing of anti-TB pharmaceuticals in India and other developing nations. This will result in more effective monitoring of their manufacturing and quality control standards. Monitoring the quality of products on the market should include locating goods that are subpar due to subpar production procedures, deteriorated due to subpar distribution and storage, and adulterated, tampered with, or counterfeit due to vested interests. Numerous studies have shown the widespread use of subpar and fake medications, particularly antimalarial, in underdeveloped nations. There is every reason to believe that if these types of counterfeit medications are available in the market, then the same is likely true of the counterfeit anti-TB medications.

For better knowledge dissemination concerning the diagnosis, management, and control of this condition, a cooperative relationship between physicians, the private sector, religious groups, and other local nonprofit organizations, such as Lions Club and Rotary International, should be strengthened. For better use of these already limited resources, existing diagnostic laboratories need to be improved with routine training/refresher courses for the relevant staff. Better diagnostic tools should be created and made accessible to

local communities in order to quickly screen for this disease at the field level. The connections between primary health centers and DOTS centers should be strengthened, and special attention should be paid to prioritizing the groups that need to be followed first; utilizing the human resources of related public health programs, such as those for HIV/malaria; encouraging the development of new TB drugs and vaccines; and avoiding the use of homoeopathy for treating TB and HIV.

CONCLUSION

Pasteurization of milk prior to marketing and organized goat/sheep abattoirs should be made legally required in order eliminating the possibility of zoonotic sources of TB. In these facilities, milk samples and carcasses can be routinely tested /examined for TB, making it possible to identify the source of TB by looking at the infected herds.

It should be made compulsory to immunize our cattle against TB and to regularly screen them (for instance, once a year at the farms and at the animal shows). Without taking into account this zoonotic component of this devastating illness, our struggle against TB would fall short. Immune Reconstitution Inflammatory Syndrome (IRIS), which is defined as the temporary worsening of current symptoms, signs, or radiographic manifestations or the temporary appearance of new symptoms, signs, or radiographic manifestations after the initiation of HAART, is a frequently observed side effect of HAART. Lymph node enlargement is the most typical sign of tuberculosis, which is the disease most frequently linked to IRIS. In one study, IRIS incidence ranged from 2% in TB alone to 7% with HIV co-infection to 36% in those starting HAART.