MULTIDRUG-RESISTANT TUBERCULOSIS: First reported in 2005, extensively drug-resistant tuberculosis (XDRTB) is now worldwide. CDC reports that if it is left uncontrolled, it could become an epidemic.

Presently, tuberculosis is responsible for nearly 2 million deaths globally. Drug-resistant strains of Mycobacterium tuberculosis bacteria are shortening the lives of humans, moreso the lives of increased mortality, immuno-compromised humans for the simple reason that the bacteria do not succumb to the usual drugs.(1,2)

Multidrug-resistant tuberculosis (MDRTB) is caused by Mycobacterium tuberculosis bacteria that are resistant to at least 2 of the most effective anti-tuberculosis treatments, isoniazid and rifampin. A relatively rare but more serious form of tuberculosis, extensively drug resistant tuberculosis is defined as strains that are resistant to the first-line drugs, isoniazid and rifampin, any fluoroquinolone, and at least one second-line drug, including 1 of 3 injectable drugs, kanamycin, capreomycin, or amikacin.(3)

A survey of international tuberculosis testing centers, conducted by CDC and WHO, revealed that from 2000-2004, 20% of all humans reported with tuberculosis were considered multi-drug resistant, while 2% of those met the criteria for extensively drug resistant tuberculosis.

In the United States, 4% of humans with multidrug-resistant tuberculosis were classified as XDR; in South Korea and Latvia, 15% and 19% of humans with MDR were characterized as XDR, respectively.(4) While 23% of all humans diagnosed with clinical tuberculosis in Africa and the Middle East, had MDR, only 1% was characterized as XDR.

From 1953 to 1984, the United States experienced a steady decline in both the number and rate of tuberculosis and associated deaths. As a result, tuberculosis control and prevention programs became relaxed and a resurgence of reported cases of disease occurred first in 1980 and continued from 1985 through 1992. In 2005, 14,097 Americans were reported diagnosed with tuberculosis, a 2.9% decline from 2005. However, of these, 1.2% had MDRTB. Notably, foreign-born and minority populations in the United States have an increased incidence of TB.

Thought to have emerged from mismanagements in the treatment of drug-susceptible tuberculosis, XDRTB is of growing concern. This is particularly true in developing nations in which limited access to first line drugs persists. This, in turn, can lead to irregular treatment or shortened treatment schedules. While regimens can be variable, the recommended treatment of tuberculosis generally consists of an initial 2-month phase, followed by a continuation phase lasting up to 7 months. Incomplete treatment regimens allow bacteria to become resistant to first-line drugs and ultimately require the use of second-line drugs, which have proven less effective and more toxic to patients. The use of less effective drugs, coupled with improper treatment schedules, can lead to resistance.

MDRTB and XDRTB are increasing, so controlling and preventing the disease is increasingly important. Recognizing XDRTB as a global issue, the CDC has partnered with WHO and other federal agencies to minimize its impact by expanding educational and disease response programs. New diagnostic and susceptibility tests would allow doctors the requisite tools to administer proper treatment. Additionally, identification of new, effective drugs, coupled with increased accessibility of these drugs, will begin to address the growing risk of XDRTB in the United States and worldwide.


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