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Overview of drug-resistant tuberculosis worldwide

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ARTICLE INFO

Article history:

Received 13 September 2016

Accepted 14 September 2016

Available online xxxx

Keywords:

Drug-resistant tuberculosis (DR-TB)

Epidemiology

Extensively drug-resistant

tuberculosis (XDR-TB)

Totally drug-resistant tuberculosis

(TDR-TB)

ABSTRACT

Even in the 21st century, we are losing the battle against eradication of tuberculosis (TB). In 2015, 9.6 million people were estimated to have fallen ill with TB, of which 1.5 million people died. This is the real situation despite the well-structured treatment programs and availability of effective treatment options since the 1950s. The high mortality rate has been associated with other risk factors, such as the HIV epidemic, underlying diseases, and decline of socioeconomic standards. Furthermore, the problem of drug resistance that was recognized in the early days of the chemotherapeutic era raises serious concerns. Although resistance to a single agent is the most common type, resistance to multiple agents is less frequent but of greater concern. The World Health Organization estimated approximately 5% of all new TB cases involved multidrug-resistant (MDR)-TB. The estimation for MDR-TB is 3.3% for new cases, and 20.5% for previously treated cases. Failure to identify and appropriately treat MDR-TB patients has led to more dangerous forms of resistant TB. Based on World Health Organization reports, 5% of global TB cases are now considered to be extensively drug resistant (XDR), defined as MDR with additional resistance to both fluoroquinolones and at least one second-line injectable drug. XDR-TB had been reported by 105 countries by 2015. An estimated 9.7% of people with MDR-TB have XDR-TB. More recently, another dangerous form of TB bacillus was identified, which was named totally drug resistant (TDR-TB) or extremely drug resistant TB. These strains were resistant to all first- and second-line anti-TB drugs. Collectively, it is accepted that 2% of MDR-TB strains turn to be TDR-TB. This number, however, may not reflect the real situation, as many laboratories in endemic TB countries do not have proper facilities and updated protocols to detect the XDR or TDR-TB strains. Nevertheless, existing data emphasize the need for additional control measures, such as new diagnostic methods, better drugs, and more effective vaccines to prevent the spread of these strains around the world.

Conflict of interest

The authors has no conflict of interest.

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Peer review under responsibility of Asian African Society for Mycobacteriology.

<http://dx.doi.org/10.1016/j.ijmyco.2016.09.066>