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Drug resistant tuberculosis, are we aware enough?

Tuberculosis (TB), the second highest cause of death from infectious diseases worldwide, is a major global health problem. Infection with strains of Mycobacterium tuberculosis complex (MTBC), the causative agent of TB, is responsible for approximately 1.4 million deaths annually. TB remains a major cause of morbidity and mortality throughout the world with major challenges facing the global effort for controlling the disease. One of the major challenges is the worldwide emergence of drug resistant strains of MTB. The greatest challenge that still facing TB-patient is that the organisms, through selection of mycobacterial mutants that result from spontaneous chromosomal alterations, become resistant to one or more of the standard anti-TB drugs. The efforts for TB control and treatment were critically hindered by the emergence of multidrug-resistance. Multidrug-resistance (MDR) is defined as the resistance of the bacillary strains to at least isoniazid (INH) and rifampicin (RMP), the two key first-line anti-tuberculosis drugs. Nevertheless, MDR-TB is not incurable, a fluoroquinolone [e.g. levofloxacin (Lfx), moxifloxacin (Mfx), ofloxacin (Ofx)], if used properly alongside other second-line injectable drugs [e.g. capreomycin (Cm), amikacin (Am) or kanamycin (Km)] could cure the majority of MDR-TB patients; with a low risk of relapse in long-term follow up. However, the challenge became even worse by the recent emergence of the extensively drug-resistant (XDR) bacillary strains. The term XDR-TB used to describe a severe form of disease,which is a case of MDR-TB with additional bacillary resistance to any of the fluoroquinolone and at least one of three second-line injectable drugs: Cm, Km and Am. Recently, the WHO estimated 650.000 cases (including 150,000 deaths) of MDR-TB with an estimated XDR-TB rate of 9% in 2010. The emergence of multidrug-resistant tuberculosis (MDR-TB), due to clinical, biological, or social factors, is now estimated to account for half a million new cases each year. The treatment of MDR-TB requires prolonged and expensive chemotherapy using second-line drugs of heightened toxicity. WHO have recently reported the highest global levels of drug resistance ever documented with 3.6% of new TB patients and 20% of previously treated cases having MDR-TB. With regard to XDR-TB, WHO in its 2011 report estimated 650.000 cases (including 150,000 deaths) of MDR-TB with an estimated XDR-TB rate of 9% in 2010. More recently, The WHO report of 2013 revealed that 92 countries had reported XDR-TB globally by the end of 2012. In conclusion, the worldwide emergence of MDR or XDR strains of MTBC pose a serious challenge for global TBcontrol and make successful treatment difficult or even impossible. The aim of the current talk is to through the light on the most recent WHO figures and to discuss the current methods and tools for diagnosis and treatment of tuberculosis and to elaborate the recommended preventive measurements for successful control of the global drug resistant tuberculosis.

Biography

Amr Mohamed Abdel Fattah Mohamed has completed his PhD at the age of 35 years from University of Nebraska Medical Center, USA at 2004. He worked as associate professor of molecular diagnostics of infectious diseases at School of veterinary medicine, Assiut University, Egypt. Currently he is a full time professor of Laboratory Medicine at Umm Al-Qura University, Saudi Arabia. He is the director of Molecular Diagnostic Research Laboratory at the Central Laboratories of Collage of Applied Medical Sciences, Umm Al-Qura University. He has published more than 20 papers in reputed journals and has been serving as an editorial board member of many reputed Journals

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