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Editorial

Tuberculosis preventive treatment in drug-resistant cases-Latest updates

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Tuberculosis (TB) has been the oldest known infection to mankind.[1] The disease has affected millions of lives with large-scale morbidity and mortality.[2] As per the latest India TB Report 2020, there were 24.04 lakh notified TB cases with 79,144 deaths.[3] The disease has two main presentations i.e., drug-sensitive and drug-resistant types.[4] The drug-resistant TB (DR-TB) could be either due to resistance to either one of the two main drugs like Rifampicin (R) and/or Isoniazid (H) or it could be due to poly-resistance due to many other second-line anti-TB drugs.[4] The management of both drug-sensitive and DR-TB is a long and tedious process involving a long treatment duration, high pill burden, multiple adverse drug reactions (ADR), etc.[5] In several cases, patient compliance is a major contributor towards achieving the desired results.[5] As per the World Health Organization (WHO), over the period of one year, people with active TB can infect up to 5-15 other people through close contact.[6] TB is found all over the world, though the vast majority of TB cases are concentrated in developing countries.[6] However, even after a well-laid national TB elimination program in countries like India, the disease is far from being eliminated.

The main reason for the same is that the efforts are aimed at treating the TB case instead of focusing on preventing the occurrence of such cases. The present paper highlights the latest changes in the TB preventive treatment (TPT), as per the latest guidelines of the WHO, to be adopted by the National Tuberculosis Elimination Program (NTEP) and Programmatic Management of Drug-resistant TB (PMDT), in a phased manner for all age groups to gain programmatic experience for a pan-India expansion.[7]

The household contacts (HHC) of patients of DR-TB are at a greater risk of TB infection (TBI) than those of drug-sensitive TB.[8,9] Based on the shreds of evidence from systemic review, meta-analysis, and cost-effectiveness of treatment of latent TB to reduce progression to MDR-TB, it has been found that a reduced risk of TB incidence is observed with the treatment of MDR-LTBI (Latent TB infection), suggesting effectiveness in the prevention of progression to MDR-TB with confirmed cost-effectiveness.[7,10] Besides, five comparison studies on the same topic suggested an incidence reduction of MDR-TB to be between 9-99% (90%) with TPT.[7,10]

WHO recommends TPT among contacts of MDR-TB with Fluoroquinolone (FQ) sensitive or H resistant with R sensitive DR-TB patients.[7] The latest recommendation takes into account the resistance patterns of the index case confirmed bacteriologically and ascertaining the TBI using Interferon-Gamma Release Assays (IGRAs) or TB skin test.[7] The present recommendations for an MDR-TB patient sensitive to FQ involve the use of Levofloxacin for six months.[7] Pediatric formulations to be used in child contacts, if tolerated and after ruling out contraindications to TPT drugs.[7] If H susceptibility is confirmed in the RR-TB cases then the contacts may be given six months H only.[7] Also, in contacts of patients of H-resistance with FQ sensitivity,

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Table 1:

TPT (Daily regimens)	Total duration in months	Expected number of doses	Recommended number of doses (days)	Extended time for treatment completion (days) (treatment duration + 33% additional time)
6 x Levofloxacin	6	180	144	239
4 x Rifampicin	4	160	96	160

a four-month treatment with R is advised.[7] Again it is also recommended that regardless of the TPT administered or not to the contacts, a clinical follow-up for two years with active investigations in case of development of new signs or symptoms of TB with the initiation of appropriate treatment post-diagnosis is imperative.[7]

It is also recommended that once a DR-TB patient is identified, all HHC's are counseled, screened, and evaluated to rule out active TB; Nucleic Acid Amplification Test (NAAT) will be used as a preferred test in all the symptomatic or with abnormal chest radiographs; and in case of contraindication to any of the TPT drugs, defer the TPT.[7]

The adherence to TPT is very important for clinical benefits at both individual and population levels.[7] As irregular or incomplete TPT will reduce the efficacy of TPT and could also potentiate the risk of developing DR-TB in HHC's.[7] It is also known that the TPT is highly effective even if 80% of the doses of the drugs are consumed within the recommended duration of TPT.[8] So the criteria for completion of TPT is as detailed in Table 1.[7]

Many randomized controlled trials for determining the best TPT in HHC's of MDR-TB are going on like-the TB CHAMP, V-QUIN, PHOENIx, etc., and the results are expected to be released soon. Overall, the latest recommendations are a welcome change which was essential for the efforts towards TB elimination. This will also be an important step for reducing the large-scale morbidity and mortality due to this highly infectious disease which is a public health problem.

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Conflict of Interest

The authors declare that there are no conflicts of interest in this paper

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