TREATMENT OF TUBERCULOSIS: WHAT IS NEW?

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Tuberculosis (TB) continues to be a leading cause of infectious disease mortality globally, with an estimated 10.8 million incident cases and 1.25 million deaths reported in 2023. Despite decades of established therapy, significant challenges persist, including prolonged treatment regimens, toxicity associated with injectable agents, and the increasing prevalence of drug-resistant TB. In the past five years, the introduction of shorter, all-oral, and more effective regimens has begun to redefine the standard of care. For drug-susceptible TB, the Tuberculosis Epidemiologic Studies Consortium (TBESC2) trial demonstrated that a rifapentine-moxifloxacin-based regimen can achieve cure in four months, which is now conditionally recommended by the World Health Organization (WHO, 2022) for eligible adults with non-cavitary disease. In pediatric populations, the SHINE trial established that four months of treatment is non-inferior to six months for non-severe TB. The most significant advancement has occurred in drug-resistant TB, where injectable aminoglycosides are no longer recommended. The all-oral BPaL(M) regimen, consisting of bedaquiline, pretomanid, linezolid, with or without moxifloxacin, achieves favorable outcomes in nearly 84 to 93% of multidrug-resistant or extensively drug-resistant TB (MDR/XDR-TB) patients within six months (Zenix trial, 2022). Revised WHO drug groupings now prioritize Group A agents (bedaquiline, linezolid, levofloxacin or moxifloxacin) as the foundation of all drug-resistant TB regimens. For TB preventive therapy, the 3HP regimen (once weekly isoniazid-rifapentine for three months) has replaced the traditional three months daily isoniazid-rifampicin therapy as the preferred global option. These developments necessitates that clinicians managing TB acquire updated competencies. Baseline ECG monitoring prior to initiating bedaquiline or delamanid, proactive surveillance for linezolid toxicity, and recognition of drug interactions of rifampicin are now essential components of care. The use of rapid molecular diagnostics, including Xpert Ultra, Xpert MTB/XDR, and targeted next-generation sequencing, further facilitates individualized regimen selection. The field has shifted toward shorter, safer, all-oral treatment regimens for both drug-susceptible and drug-resistant TB. However, translating clinical trial evidence into routine practice, especially in high-burden settings, remains a significant ongoing challenge.

Keywords: Tuberculosis, Drug-resistant tuberculosis (DR-TB),Multidrug-resistant TB (MDR-TB), Global burden of disease

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