

Global Health Day

Antituberculosis Therapy and Gut Microbiota: Review of Potential Host Microbiota Directed-Therapies

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Tuberculosis (TB) remains a major public health concern with millions of deaths every year. The overlap with HIV infections, long treatment duration, and the emergence of drug resistance are significant obstacles to the control of the epidemic. Indeed, the standard TB treatment takes at least six months for the first-line treatment and even longer for the second-line. The increase of reinfection, relapse and drug resistant strains still a challenge for scientists. A recently proposed strategy for shortening the treatment duration is to apply corrective measures to the gut microbiota during treatment, given the now established marked impact of TB drugs on the gut microbial populations that may be essential for faster bacterial clearance and a better treatment outcome. Many reports have proven prolonged and significant damage (dysbiosis) of the gut microbial community from anti TB drugs that can detrimentally persist several months after the cessation of treatment. In this review, we will study the role of the gut microbiota in both TB infection and treatment, and its potential link with treatment duration. Will be also discussed, the new concept of Host Microbiota Directed-Therapies (HMDT) as a potential adjunctive strategy in order to improve the effectiveness, reduced duration of TB therapy and an alternative for more protective vaccine elaboration. This may include the use of probiotics, prebiotics, gut microbiota transfer, and other strategies. Application of this innovative solution could lead to HMDT as an adjunctive tool to shorten TB treatment, which will have enormous public health impacts for the End TB Strategy worldwide.

Keywords: Tuberculosis, gut microbiota, Treatment and Host Directed-Therapies, dysbiosis.

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