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Multidrug-resistant tuberculosis in Ethiopian settings and its association with previous antituberculosis treatment: A systematic review and meta-analysis

Setegn Eshetie*, Feleke Moges, Mulat Dagnew

Department of Medical Microbiology, School of Biomedical and Laboratory Sciences, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia

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ABSTRACT

Objectives/Background: Efforts to control the global burden of tuberculosis (TB) epidemic have now been jeopardized by the rapid evolution of drug-resistant *Mycobacterium tuberculosis* (MTB), which are resistant to one or more anti-TB drugs. Multidrug resistant (MDR) TB in Ethiopia may be more prevalent than previously appreciated; thus, up-to-date national drug resistance studies are critically needed. Therefore, this meta-analysis aimed, first, to determine pooled prevalence of MDR TB among newly diagnosed and previously treated TB cases, and second, to measure the association between previous anti-TB exposure and acquisition of MDR-MTB infection.

Methods: PubMed and Embase databases were consulted. Studies that reported the prevalence of MDR TB among newly diagnosed and previously treated TB patients were selected. Studies or surveys conducted at a national or subnational level, with reported MDR-TB prevalence or sufficient data to calculate the prevalence, were considered for the analysis. Two authors searched and reviewed the studies for eligibility and extracted the data in pre-defined forms. Forest plots of all prevalence estimates were performed, and summary estimates were also calculated using random effect models. Associations between previous TB treatment and MDR-MTB infection were examined through subgroup analyses stratified by new and previously treated patients.

Results: We identified 16 suitable studies, and found an overall prevalence of MDR TB of 1.7% (95% confidence interval 1.2–2.3%) among newly diagnosed and that of 14.1% (95% confidence interval 10.9–17.2%) among previously treated TB patients, and the observed difference was statistically significant ($p < .01$). For the past 10 years, the overall MDR-TB prevalence showed a stable time trend. There was an odds ratio of 8.1 (95% confidence interval 7.5–8.7) for previously treated TB patients to develop an MDR-MTB infection compared with newly diagnosed cases.

* Corresponding author at: Department of Medical Microbiology, School of Biomedical and Laboratory Sciences, College of Medicine and Health Sciences, University of Gondar, Post Office Box: 196, Gondar, Ethiopia.

E-mail addresses: wollet03.2004@gmail.com, seteeshetu@yahoo.com (S. Eshetie).

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Conclusion: The MDR-TB prevalence remains high, especially in previously treated TB cases. Previous TB treatment was the most powerful predictor for MDR-MTB infection. Hence, strict compliance with anti-TB regimens and improving case detection rate are urgently needed to tackle the problem.

Conflicts of interest

The authors have no conflicts of interest to declare.