

Molecular Epidemiology and Drug Sensitivity Pattern of *Mycobacterium tuberculosis* Strains Isolated from Pulmonary Tuberculosis Patients in and around Ambo Town, Central Ethiopia

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Introduction: Tuberculosis (TB) is caused by *M. tuberculosis* complex and remains a major global public health problem. The epidemic remains a threat to sub-Saharan Africa, including Ethiopia, with further emergence of drug resistant TB.

Methods: A cross-sectional study was conducted involving 105 consecutive new smear positive pulmonary TB patients diagnosed at Ambo Hospital and surrounding Health Centers between May 2014 and March 2015. Sputum samples were cultured on Löwenstein-Jensen (LJ) media using standard techniques to isolate mycobacteria. Region of difference 9 (RD9)-based polymerase chain reaction (PCR) and spoligotyping was employed for the identification of the isolates at species and strain levels. The spoligotype patterns were entered into the SITVIT database to determine Octal and SIT (Spoligotyping International Typing) numbers for each strain. The sensitivity of the isolates to isoniazid (INH), rifampicin (RIF), ethambutol (ETB) and streptomycin (STM) was evaluated on LJ-medium with the indirect proportion method.

Results: Cultures were positive in 86/105 (82 %) of newly diagnosed smear positive pulmonary TB cases. All of the 86 isolates were confirmed as *M. tuberculosis.* The majority (76.7%) of them were clustered into seven groups while the rest (23.3%) appeared unique. The most predominant Spoligotypes were SIT53 and SIT149, consisting of 24.4% and 20.9% of the isolates, respectively. The majority (76.7%) of the *M. tuberculosis* isolates were susceptible to all the four drugs. Any resistance to any one of the four drugs was detected in 23.3% of the isolates. The highest proportion of any resistance was observed against isoniazid (9.3%) and ethambutol (7%). There was only a single case (1.2%) of multidrug resistant/rifampicin resistant (MDR/RR) TB.

Conclusion: The majority of the isolates were clustered suggesting on-going active transmission in the study area. Mono resistance is relatively prevalent while the magnitude of MDR/RR-TB was found to be lower than in previous studies.

Biography

Mr Melaku Tilahun is completed his MSc Degree in Clinical Laboratory Science with Diagnostic and Public Health Microbiology Specialty in Addis Ababa University, Ethiopia. He is part of a big Laboratory at the Armauer Hansen Research Institute working as Associate Researcher. He has worked as a Laboratory Manager of the Institute for the past two consecutive years. During his stay at the institute he was participating in different research projects and he has published his work in the PLOS ONE open access peer reviewed journal. Currently he has joined Arba Minch University, Ethiopia to study his PhD Degree in the field of Medical Biotechnology. He has published 2 research outputs in open access peer reviewed journals.

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