

Investigation of Rifampicin and Isoniazid Resistance Mutated Genes in Mycobacterium Tuberculosis Isolated From Patients

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Abstract : Introduction: Mycobacterium tuberculosis (MTB) is the most intelligent bacterium that existed in the world to our best knowledge. This bacterium can cause tuberculosis (TB) which is responsible for its spread speed and murder of millions of people around the world. MTB has the practical function to escape from anti-tuberculosis drugs (AT), for this purpose, it handles some mutations in the main genes and creates new patterns for inhibited genes. Method and materials: Researchers have their best tries to safely isolate MTB from the sputum specimens of 35 patients in some hospitals in the Tehran province and detect MTB by culture on Löwenstein-Jensen (LJ) medium and microscopic examination. DNA was extracted from the established bacterial colony by enzymatic extraction method. It was amplified by the polymerase chain reaction (PCR) method, reverse hybridization, and evaluation for detection of resistance genes; generally, researchers apply GenoType MTBDRplus assay. Results: Investigations of results declare us that 21 of the isolated specimens (about 60%) have mutation in rpoB gene, which resisted to rifampicin (most prevalence), and 8 of them (about 22.8%) have mutation in katG or inhA genes which resisted to isoniazid. Also, 4 of them (about 11.4%) don't have any mutation, and 2 of them (about 5.7%) have mutation in every three genes, which makes them resistant to the two drugs mentioned above. Conclusion: Rifampicin and isoniazid are two essential AT that using in the first line of treatment. Resistance in rpoB, and katG, and inhA genes related to mentioned drugs lead to ineffective treatment.

Keywords : mycobacterium tuberculosis, tuberculosis, drug resistance, isoniazid, rifampicin

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