Abstract

The relation of ethambutol resistance to embB mutations remains unclear, and there are no reports on ethambutol resistance from the Caribbean. We examined the sequence of embB in 57 distinct Multi-Drug Resistant (MDR) and non-MDR strains of Mycobacterium tuberculosis, mostly from Cuba and the Dominican Republic. embB306 codon mutations were found exclusively in MDR-TB, but in both ethambutol sensitive and resistant strains. Valine substitutions predominated in ethambutol resistant strains, while isoleucine replacements were more common in sensitive strains. Three ethambutol resistant MDR strains without embB306 substitutions had replacements in embB406 or embB497, but these were also found in ethambutol sensitive MDR strains. The results confirm previous findings that amino acid substitutions in embB306, embB406 and embB497 are found only in MDR-TB strains but in both phenotypically resistant and sensitive strains. One ethambutol resistant non-MDR strain did not have any embB mutation suggesting that other undefined mutations can also confer ethambutol resistance.

Keywords

Mycobacterium tuberculosis, ethambutol resistance, multidrug resistance, embB mutations, drug sensitivity testing.