FIRST AND SECOND-LINE ANTI-TUBERCULOSIS DRUG SUSCEPTIBILITY RATES OF MYCOBACTERIUM TUBERCULOSIS CLINICAL ISOLATES IN 2005 AND 2006

Ali Albay[1], Ozgul Kisa[1], Ahmet Tombak[2], Gulnur Tarhan[2], Ismail Ceyhan[2]

[1]Department of Microbiology and Clinical Microbiology, Gulhane Military Medical Academy and School of Medicine, Ankara,

[2]Refik Saydam Hygiene Center, Tuberculosis Reference and Research Laboratory, Ankara, Turkey

The purpose of the study is to investigate the susceptibility rates of *Mycobacterium tuberculosis* clinical isolates against first-line and second-line antituberculosis drugs. A total of 174 *M. tuberculosis* strains were collected between 2005 and 2006.

Methods: The culture of the *M. tuberculosis* strains was performed by using BACTEC TB 460 culture system and Löwenstein Jensen culture media. Drug susceptibility tests of 174 *M. tuberculosis* isolates for the first-line antituberculosis drugs (Isoniazid: INH, streptomycin: SM, Ethambutol: EMB, Rifampicin: RIF) were performed by BACTEC TB 460 culture system and agar proportion method in Löwenstein Jensen culture media. Second-line antituberculosis drug susceptibility (cycloserine: CYC, ethionamid: ETH, capreomycin: CAP, thioacetazon: TIA, ofloxacin: OFL, kanamycin: KAN) tests of the 35 bacteria resistant to at least one drug were performed by agar proportion method in Löwenstein Jensen according to NCCLS criteria.

Results: We found that 79.9% of isolates were susceptible to all four first-line antituberculosis drugs, whereas 20.1% were resistant to at least one drug. Only one strain was resistant to all four major drugs. Multi-drug resistance was found as 1.7%. Total single drug resistance was 9.7%. Single drug resistance rates for INH, SM, EMB and RIF were 6.9%, 2.8%, 3.4% and 4.0% respectively. Poly-drug resistance (except MDR) was observed in 9 isolates (5.1%). For the second-line drugs; four of the isolates were resistant to ETH and three of them were resistant to KAN. Resistance to OFL was observed in seven of the isolates. The rest of the isolates were susceptible to all second-line drugs tested.

Conclusion: Our results showed that there is an increase in the resistance to at least one drug when we compare with our previous study. Second-line drugs may be alternative in the treatment of tuberculosis patients who can not use first line antituberculosis agents for their side effects or drug resistance.