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ABSTRACTS

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M. tuberculosis drug resistance and clinical outcome in Greek and immigrant patients

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Objective: We studied Isoniazide (INH), Rifampicin (RIF) and (MDR) resistance (INH+RIF) of *M. tuberculosis* strains derived from Greek and immigrant patients of 'Sotiria' hospital, in the years 1993–1995 and 2001–2003. We also studied the clinical outcome in the same patients.
Methods: In 1993–95, 1391 *M. tuberculosis* strains were studied, 1209 from Greeks and 182 from immigrants, while in 2001–03, 1270 strains, 960 from Greeks and 306 from immigrants. Cultures and susceptibility testing were performed, classically and automatically, by Bactec 460 and MGIT 960 systems.
Results: In 1993–95, 81/1209 (6.7%) *M. tuberculosis* isolates from Greeks and 26/182 (14.3%) from immigrants were resistant to either INH or RIF. 'Sotiria' TB unit followed up 64 (79%) Greeks and 24 (92.3%) immigrants. Successful therapy was for 50 (78%) Greeks and 13 (54%) immigrants, while contact was lost with 14 (22%) Greeks and 11 (46%) immigrants. In 2001–03, 144/964 (14.9%) isolates from Greeks and 103/306 (71%) from immigrants were resistant to either INH or RIF. 'Sotiria' TB unit followed up 103/144 (71%) Greeks and 63/306 (85%) immigrants. Successful therapy was for 72 (70%) Greeks and 51 (82%) immigrants, while contact was lost with 31 (30%) Greeks and 12 (19%) immigrants. In 1993–95, 14/1209 (1.16%) Greeks and 4/182 (2.20%) immigrants were MDR. TB unit followed up 11 (78.6%) Greeks and 4 (100%) immigrants, with a successful outcome for 7 (63%) Greek and 2 (50%) immigrant patients and lost contact with 3 (27%) Greeks and 2 (50%) immigrants. One Greek patient died. In 2001–03, 36 (3.73%) Greeks and 18 (5.88%) immigrants were MDR. TB unit followed up 25 (69.4%) Greeks and 17 (94.4%) immigrants and lost contact with 5 (20%) Greeks and 3 (17.6%) immigrants. Successful outcome was for 13 (52%) Greeks and 8 (47%) immigrants, while 5 (20%) Greeks and 5 (29.4%) immigrants are still under therapy. 2 (8%) Greeks and 1 (6%) immigrants died.
Conclusion: There is a remarkable increase of *M. tuberculosis* resistance to INH, RIF and MDR, both in Greeks and immigrants, but the per cent of successful clinical outcome remains almost the same. Greek authorities should organize a modern and functional TB monitoring system.

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Mycobacterium tuberculosis primary resistance during 1995–2004 in a general universitary hospital, Alicante, Spain

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Introduction: The treatment of tuberculosis as global emergency of public health, fail by drug resistance, inadequate regimen, or noncompliance with prescribed treatment. The resistance to antituberculous agents is primary when it is present before treatment has been started and secondary when it happens during treatment course.
Objectives: To know the prevalence of resistant *Mycobacterium tuberculosis* in primary infections during the period of time 1995–2004.
Methods: The results of susceptibility tests in positive cultures for *M. tuberculosis* were analysed. Cultures in solid medium Lowestein-Jensen and liquid medium Middlebrook 7H12 were made, and, drug susceptibility testing was done by using a radiometric BACTEC 460 system (Becton Dickinson Diagnostic Systems). The antituberculous drugs tested have been as following: streptomycin, isoniazid, rifampicin, ethambutol and pyrazinamide.
Results: In a total of 490 patients with diagnosis of tuberculosis and positive culture, 89.8% (440) of cases shown sensibility to all antituberculous agents, and 10.2% (50) of them were resistant at least to one drug. The 76% (38) of cases in the resistant group were just to one drug, and 24% (12) were resistant to more than one agent. There were 1.4% of multidrug-resistant tuberculosis (MDR-TB) (rifampicin and isoniazid resistance) and, of them, 3 cases were resistant also to a third or fourth drug, pyrazinamide, streptomycin and/or ethambutol. In the period 1995–1997 we have found two cases of MDR TB, another case in the period 1998–2000, and four cases in 2001–2004.
Conclusions: The resistance rate in our area was of 10.2%. The antituberculous agent with higher number of resistances was isoniazid (8.8%), followed by rifampicin (2%). Ethambutol and streptomycin (0.6%) were found in a lowest percentage. The global multidrug-resistant tuberculosis was 1.4%, influenced mainly by increasing number of cases in last years.

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Prevalence of mutations associated with drug resistance in Beijing and non-Beijing *Mycobacterium tuberculosis* strains from the Southern Ukraine

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Tuberculosis (TB) incidence in Ukraine has virtually doubled since 1992, reaching 77.5/100 000 in 2003. Recent studies have demonstrated that Beijing strains of *Mycobacterium tuberculosis* dominate in certain regions of Russia and some countries of the former Soviet Union (FSU). The spread of Beijing strains and their strong association with high levels of drug resistance are believed to be major factors contributing to the TB epidemic in the FSU. Limited data regarding drug resistance rates are available only for selected regions of Ukraine and the prevalence of different genotypes and their contribution to the TB epidemic in Ukraine is unknown.
Objective: To determine the prevalence of Beijing strains of *M. tuberculosis* in two regions in the Southern Ukraine and their association with drug resistance and to determine prevalence of specific mutations associated with rifampicin and isoniazid resistance.
Materials and methods: Total of 110 *Mycobacterium tuberculosis* strains isolated from patients with pulmonary TB from Odessa and Nikolaev oblasts were analysed. Beijing strains were identified using spoligotyping. The prevalence of mutations in rpoB, katG and inhA associated with rifampicin and isoniazid resistance was evaluated using a dot-blot hybridization macroarray based on reverse hybridization of biotin-labelled PCR products to oligonucleotide probes immobilized on membranes.
Results: Spoligotyping of 110 *M. tuberculosis* strains yielded 12 clusters and 28 individual patterns with the largest cluster consisting of 34 isolates. Forty (36.4%) strains were identified as the Beijing strains. Six Beijing isolates had incomplete Beijing spoligotyping profiles with spacers 37, 37–38, and 38–40 missing. Mutations conferring multidrug resistance were most prevalent in Beijing strains (47.5% versus 22.9%). In rifampicin resistant isolates mutations were seen in rpoB codons 512–519, 523–529, and 528–534 in 18.9%, 32.4%, and 51.4% respectively. Mutations in codons 528–534 of rpoB were strongly associated with Beijing strains. Previous evidence about association of mutations in katG codon 315 with the Beijing genotype was not supported in our study.