To investigate the epidemiology of tuberculosis in three distinct regions in Greece including molecular typing of isolates.

**Background**

Tuberculosis (TB) remains a major threat to human health, especially in developing countries. In recent years, Greece has become the destination of a number of immigrants. Many of them originate from countries with high rates of TB and multidrug-resistant TB (MDR-TB), such as Pakistan, Bangladesh, India, Russia, sub-Saharan countries and the countries of Eastern Europe[1]. Under these circumstances, molecular epidemiological studies have been useful tools for tracing the transmission patterns of Mycobacterium tuberculosis (MTB). MIRU-VNTR (Mycobacterial Interspersed Repetitive Units-Variable Number of Tandem Repeats) typing method has been shown to be a reliable and reproducible typing method with high discriminatory power [2].

**Materials & Methods**

Demographic, clinical and laboratory data of 211 consecutive tuberculosis patients (111 Athens metropolitan area, 50: Thessaly [Central Greece], 50: Crete [Southern Greece]) were recorded. Patients were diagnosed during 2006-2011.

**Results**

- The majority (69.2%) of patients were Greeks (Table 1) with higher mean age compared to foreigners (62.8 versus 31 years, p<0.001).
- Among 211 patients, 124 were males (58.8%) and 87 females (41.2%).
- The majority of foreign patients (64.3%) were aged between 25 to 44 years.
- Among 211 MTBC isolates: 206 were identified as *M. tuberculosis* complex (97.6%), the remaining 5 (2.4%) were *M. bovis* and *M. bovis BCG* (0.02%).
- Only three strains (1.5%) were multidrug-resistant (MDR).
- Resistance rates were: isoniazid 8.5% (range among regions: 6-10%), rifampin 1.4% (0-2%), ethambutol 1.4% (0-2%), streptomycin 16.1% (range among regions: 11-23%), pyrazinamide 3.8% (range among regions: 0-7%).
- Resistance to isoniazid was also demonstrated in patients from Thessaly (26/50 or 52%) and Crete (28/50 or 56%).
- The most frequent families were *Hayperl* (42.9%), *Indo-Ocean* (34.4%), *Andrographi* (18.0%), *Shen* (12.3%).

**Conclusions**

- Apart from Crete, tuberculosis is still more frequently diagnosed among Greeks but not exclusively linked to increased age.
- MDR strains remain uncommon and are associated with the virulent Beijing type.
- A considerable isoniazid resistance rate appears constant between regions.
- This finding in connection to low MDR rates justifies the application of rapid molecular testing targeting isoniazid rather than rifampin resistance genes.
- The application of genotyping for the first time forms a basis for the delineation of molecular epidemiology of MTB in Greece.

**References**