

## Antibiotic resistance

### Changing drug profiles of the same strain reactivating three times in a patient with intestinal Tuberculosis

Fernández-Figueiras Sandra<sup>1</sup>, Toro-Araujo Elsa Sofia<sup>1</sup>, Angulo-Rojas Alejandro<sup>1</sup>, Montilla Ninoska<sup>2</sup>, Da Mata-Jardín Omaira Josefina<sup>1</sup>, and de Waard Jacobus H<sup>3</sup>

1 Laboratorio de Diagnósticos Especiales, Departamento de Bacteriología, Instituto Nacional de Higiene Rafael Rangel. Caracas. Venezuela.

2 Laboratorio de Microbiología, Hospital General del Este Dr. Domingo Lucianiá, Instituto Venezolano de los Seguros Sociales. Caracas. Venezuela.

3 Laboratorio de Tuberculosis, Instituto de Biomedicina. Caracas. Venezuela.

**BACKGROUND:** In 1998-99, a national drug resistance survey in Venezuela was done by Control Tuberculosis Program reporting low prevalence of antituberculosis multi-drug-resistance (MDR) with 0,5 % in new cases. **OBJECTIVE:** To asses drug susceptibility of *Mycobacterium tuberculosis* strains isolated from 2001 to 2006 in the National Institute of Hygiene Rafael Rangel, in Caracas. **METHODS:** Available strains were tested using the Alamar Blue colorimetric method of Yajko *et al.* **RESULTS:** Of 329 strains, 45 (14 %) showed resistance to one or more drugs. Resistance to streptomycin (10 ug/ml) was found in 31 (9 %) strains, isoniazid (INH) (1 ug/ml) in 23 (7 %), rifampicin (RMP) (5 ug/ml) in 13 (4 %), and ethambutol (10 ug/ml) in 12 (4 %). Of the 15 (5 %) isolates resistant to two ore more drugs, 12 (4 %) were resistant to INH and RMP (defined as MDR) Of these 12 MDR-TB strains, 11 were isolated from sputum and one from pleural fluid, we had clinical-epidemiological information of 4 patients.

### Prevalence of anti-tuberculosis drug resistance in Caracas, Venezuela; 2001-2006

Loren Orozco<sup>1</sup>, Mailis Maes<sup>1</sup>, Jacobus H. de Waard<sup>1</sup>

1 Laboratorio de Tuberculosis, Instituto de Biomedicina, Caracas, Venezuela.

**INTRODUCTION:** A 34-years old masculine patient was diagnosed with intestinal TB in 4 opportunities: January 2004, January 2005, August 2006 and September 2007. TB treatment was initiated four times with the same 4 drugs (INH, RIF, PZA, EMB). Patient completed treatment and improved significantly his conditions; gaining his bodyweight and without symptoms. **OBJECTIVES:** To determine if drug resistance and consequently relapse or a re- infection with another strain caused intestinal TB in this patient. **METHODS:** Drug resistance patterns (INH, RIF, STR, EMB) for the four isolates of *M. tuberculosis* were determined with the nitrate reductase assay described by Ångeby *et al.* 15-Locus based MIRU described by Supply *et al.* was preformed to determine the relatedness of the strains. **RESULTS:** The strain isolated in the year 2004 showed resistance to isoniazid only. The strain isolated in 2005 was susceptible to all the 4 drugs tested. The strains isolated in 2006 and 2007 were resistance to Rifampicin. MIRU-VNTR showed the same pattern for the four isolates. **DISCUSSION:** This study shows that different sub- populations of the same strain colonized the patient in different moments of time. There is no explication why different sub-populations survive treatment and reactivate.