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ePoster Viewing

Antimicrobials: in vitro antibacterial susceptibility

Antimicrobial susceptibility and clinical relevance of *Mycobacterium avium* complex isolates

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**Objectives.** *Mycobacterium avium* complex (MAC) including a group of mycobacterial pathogens most commonly isolated from respiratory samples. In addition, MAC infection can also result in lymphadenitis and disseminated disease in both immunocompromised and immunocompetent patients. Clinical indications of performing susceptibility testing are predefined while clarithromycin is considered as the drug of choice. The aim of our study is to investigate the clinical significance and the susceptibilities of MAC isolates recovered from clinical specimens in Crete, Greece.

**Methods.** We studied 42 MAC isolates recovered from different patients during the decade 1/2001-12/2010. Strains were identified with the Genotype CM assay (Hain-Lifescience). Sequencing analysis of *hsp65* (440bp) and *rpoB* (711bp) genes was performed when necessary. The minimum inhibitory concentration (MIC) in µg/ml was determined with the standard broth microdilution method according to the Clinical and Laboratory Standards Institute (CLSI document M24-A2) using a commercial assay (SLOMYCOI, TREK Diagnostic systems). Isolates were tested against the primary drug clarithromycin, the secondary drugs moxifloxacin and linezolid and the clinically useful drugs streptomycin, ethambutol, rifampicin, rifabutin and amikacin. The breakpoints of resistance to clarithromycin (≥32µg/ml) to linezolid (≥32µg/ml) and to moxifloxacin were recommended by CLSI. The breakpoints of resistance to streptomycin (≥8µg/ml), ethambutol (≥8µg/ml), rifampicin (≥8µg/ml), and amikacin (≥32µg/ml) were not defined by CLSI but by previous literatures. Finally the MIC50 and MIC90 for all antibiotics tested were determined.

**Results.** We identified 33 strains as *M.avium*, 5 *M.marseillense*, 2 *M.chimaera*, 1 *M.timonense* and 1 *M.intracellulare*. Thirty-five strains recovered from respiratory specimens, 3 from blood and 4 from lymph node biopsies while 4/42 recovered from HIV(+) patients. From the 35 strains recovered from respiratory specimens 22 were considered clinically significant according to the corresponding criteria established by the American Thoracic Society (ATS). Forty-one of 42 strains were clarithromycin susceptible (97.8% susceptibility). MIC50 and MIC90 were 4 and 8µg/ml (range: 0.5- >64µg/ml) respectively. On the contrary, 93% (39/42) of strains were moxifloxacin and linezolid resistant. MIC50 and MIC90 were 4 and 8µg/ml for moxifloxacin (range: 1- >8 µg/ml) and 64µg/ml for linezolid (range: 8- >64µg/ml) respectively. All strains were resistant to streptomycin (range: 8- >64µg/ml), 95.2% (40/42) to ethambutol (MIC50/MIC90: 8/16 µg/ml, range: 4- >16µg/ml), 76.2% (32/42) to rifampicin (MIC50: >8 µg/ml, range: 2->8µg/ml), and 69% (29/42) to amikacin (MIC50:32µg/ml, range: 8 - 64µg/ml). MIC50 and MIC90 for rifabutin were 0.5 and 2µg/ml (range: <0.25- 4µg/ml), respectively.

**Conclusion.** This study indicates the distribution of species the clinical relevance and the existing sensitivity/resistance of MAC isolates recovered in Crete, Greece. It demonstrates also that only clarithromycin revealed highly antimicrobial activity against MAC isolates while moxifloxacin, linezolid, streptomycin, etambutol, rifampicin and amikacin showed poor activity *in vitro*. The correlation between *in vitro* activity and the outcome of treatment will validate this conclusion.