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PRAWIT KETTHONG: IDENTIFICATION OF *MYCOBACTERIUM AVIUM – INTRACELLULARE* COMPLEX TO SPECIES LEVEL BY PCR AND DRUG SUSCEPTIBILITY. THESIS ADVISORS: PANKORN IMWIDTHAYA, M.D., JUREE JEARANAISILAVONG, M. Sc., AMORNRUT LEELAPORN, Ph.D., SUPORN FOONGLADDA, D.V.M., Ph.D. 114 p. ISBN 974-663-526-3

Mycobacterium avium – intracellulare complex (MAC) has become a major human pathogen, especially in HIV- positive patients. Species identification of MAC by multiplex PCR and drug susceptibility testing to clarithromycin, ethambutol, rifampicin and amikacin were carried out. Isolates recovered from 127 patients were identified as MAC by conventional culture and biochemical identification method in the Mycobacteriology laboratory, Department of Microbiology, Faculty of Medicine, Siriraj Hospital during July 1997-July 1999. MAC isolates were characterized to the species level by PCR with four pairs of primers specific for each species. *M. avium* was identified by selective amplification of a 187-bp fragment within DT6 sequence, 666-bp fragment within DT1 and 487-bp fragment within IS*1245* insertion sequence using AV6-AV7, IN38-IN41 and P1-P2 primers, respectively. *M. intracellulare* was differentiated by amplification of DT1 sequence with IN38-IN41 primers and *hsp65* gene with YNP7-YNP8 primers. Proportion method was used to determine drug susceptibility of MAC clinical isolates.

One hundred and eight isolates (86 %) were identified as *M. avium.* Among them, 90, 6 and 12 isolates were from HIV- positive, HIV- negative and unknown HIV status patients, respectively. IS*1245* was not found in approximately 4 % of *M. avium*. Only one isolate MAC studied was identified as *M. intracellulare*. This strain was recovered from an AIDS patient. Eighteen isolates were unclassified MAC which were isolated from 13 HIV- positive patients, 3 HIV- negative and 2 unknown HIV status patients. Eighty-seven percent (90/104) of HIV- positive patients with MAC infection were caused by *M. avium*, 12 % (13/104) were due to unclassified MAC and only 1 % was infected with *M. intracellulare*. For HIV- negative patients, 6 isolates of *M. avium* and 3 isolates of unclassified MAC were identified. Fifty-six percent of MAC were susceptible to clarithromycin and 31 % were susceptible to ethambutol. Only 12 % and 9 % were susceptible to rifampicin and amikacin, respectively. Only 5 of 127 isolates were susceptible to all drugs tested (3 *M. avium*, 1 *M. intracellulare* and 1 unclassified MAC). Thirty-eight percent were found to be resistant to all drugs tested. None of isolates was resistant to clarithromycin alone.