PUD-05

# POLYMORPHISM OF IL-1 RA INTRON 2: RISK OF PULMONARY TUBERCULOSIS AND CAVITY FORMATION

Yang-Hao Yu[1], Ying-Ju Lin[2,3,4], Cheng-Chun Lee[2], Yuhsin Tsai[5], Chang-Hai Tsai[2,3,6] Fuu-Jen Tsai[2,3,5,6], MD, Ph.D.

Divisions of Pulmonary and Critical Care Medicine[1], Department of Medicine. Departments of Medical Research[2], Pediatrics and Medical Genetics[3], China Medical University Hospital. Graduate Institute of Acupuncture Science[4], Graduate Institute of Chinese Medical Science[5], China Medical University, Asia University[6]. Taichung, Taiwan.

**BACKGROUND/AIMS:** Tuberculosis remains an important cause of infectious disease worldwide, but the pathogenesis of susceptibility and clinical progression is not well understood. The identification of host genetic factors that may be associated with clinical phenotypes should improve our understanding of this disease. Interleukin-1 receptor antagonist (IL-1 Ra) plays the role of an inflammatory modulator by competitively inhibiting the IL-1 receptor and influencing the clinical symptoms of tuberculosis. IL-4 has a synergistic effect on IL-1 Ra, and has a detrimental effect on the antibacterial efficacy of the T helper 1 response.

**METHODS:** One hundred and fifty-five patients with pulmonary tuberculosis and one hundred and five healthy controls participated in this case-control study to evaluate the association between pulmonary tuberculosis and both polymorphisms of IL-1 Ra intron 2 and IL-4 intron 3.

**RESULTS:** The percentage of developing cavity for pulmonary tuberculosis was 22% and pleural effusion was 25%. The genotype of IL-1 Ra allele II was found less often in pulmonary tuberculosis and the odds ratio (OR) was 0.34 (95%CI: 0.14-0.80, $p$=0.013). Moreover, the IL-1 Ra allele II carrier was associated with cavity formation and the OR was 5.0 (95%CI: 1.26-19.80, $p$=0.022). There was no association found for polymorphic IL-4 intron 3 between the tuberculosis patients and the controls.

**DISCUSSION/CONCLUSIONS:** Polymorphism of IL-1 Ra intron 2 was associated with pulmonary tuberculosis. The infrequent IL-1 Ra allele II carrier was at risk of cavity formation in Taiwanese. Further study to clarify the mechanism of the IL-1 Ra allele II and its related protein on pulmonary tuberculosis is warranted.

**Key words**: Polymorphism, Tuberculosis, IL-1 receptor antagonist, IL-4.