Interleukins with Pulmonary Tuberculosis and the Asthma-Chronic Obstructive Pulmonary Disease Overlap Syndrome

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Mini Review

Asthma-chronic obstructive pulmonary syndrome (ACOS) is a disorder sharing the components of the asthma and COPD. The ACOS considered as a system inflammation disease. The cytokines such as interleukin-6 (IL-6) [1] and interleukin -10 (IL-10) associated with ACOS [2]. The IL-6 enhancing the inflammation of lung and IL-10 attenuate the inflammation of lung [3,4]. In the ACOS, forced expiratory volume in one second (FEV1%) predicted was inversely associated with IL-6 level, [5] and cardiovascular disease [6] was associated with an increased IL-6 level [1]. The higher level of IL-6 and lower level IL-10 were found in the ACOS. Therefore the ACOS have the poor lung function and higher frequency of the acute exacerbation [2]. Meanwhile, the ACOS have the higher risk of the neurodegenerative diseases [7] in accordance with these speculations. The incidence of the PTB was higher in the ACOS cohort [8]. The IL-6 and IL-10 were associated with the active PTB [9]. The lower level of IL-10 was found in the drug-resistant PTB [10]. Meanwhile, the higher level of IL-6 may be associated with the active PTB progression and is related the radiological severity also [11].

The bacilli loading associated with the chest X-ray [11] and high-resolution computer tomography grading may have a better role for predict the bacilli loading support these findings [12-14]. In versa, the increased IL-10 may have an antibacterial effect on the TB [15,16]. The IL-10 as biomarkers of the host response to PTB during convalescence from, and the absence of, active PTB [17]. Moreover, the IL-10 in accordance with the CXR progressive change in initial, recovery and recurrent stage of the PTB [18,19]. The statin may attenuate the inflammation of the airway such as asthma [20]. Meanwhile, the COPD cohort with statin use have the lower incidence of the PTB [21]. The report of the up-regulation of the stains by increased level of IL-10 and down-regulation of the IL-6 in the COPD cohort in line with these reports [22]. The statins ame-

liorated the level of these interleukins may attenuate the inflammation of lung. In addition, statins effective against TB in macrophages and enhance the activity of the first-line anti-TB regimen in animal study support these speculations also [23].

Therefore, the statins use may have the less incident of the PTB in ACOS. These speculations need more researches for confirmation. However, the role of the IL-6 and IL-10 in PTB may play a different role in the different stage in different cohort and other cytokines such as interleukin-2 (IL-2) or interleukin-4 (IL-4) also play a role of the radiological recovery in PTB patients [9,18,19,24]. The association of the cytokines, statins with the PTB among the ACOS cohort warrant more researches.

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