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HUMAN ADENOVIRUS TYPE 7 INFECTION INDUCED PNEUMONIA WAS ASSOCIATED TO FUNCTIONAL IMPAIRMENT OF PERIPHERAL CXCR5+CD8+ T CELL

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Human adenovirus (HAdV) infection is an important problem in the army by leading to mass outbreaks, even causing life-threatening pneumonia. The underling immune mechanisms for the severe HAdV pneumonia were not clear by now. CXCR5+CD8+ T cells were a new described subset of CD8 T cells which exhibit more potent cytotoxic function and involve in the viral clearance. During an outbreak caused by HAdV type 7 (HAdV7), we enrolled total 66 male military personnel, including 33 patients (body temperature >38°C, HAdV7 DNA test of throat swabs by PCR was positive, 15 of them had pneumonia), 17 individuals with asymptomatic infection (silent group, HAdV7 DNA positive, but no fever) and 16 close contacts (neither HAdV7 DNA positive, nor fever). Sixteen health controls were from adjacent military base. The peripheral lymphocyte subsets and functional changes of peripheral CXCR5+CD8+T cells were investigated by flow cytometry in different time points during outbreak period and four weeks after the end of this outbreak, and the relationship between functional changes of this subset and disease progress was analysed. The results showed contact group were significant higher levels of CXCR5+CD8+T cell frequencies and augmented expressions of PD1. IFN-γ and TNF-α production of CXCR5+CD8+T cells of contact and silent infection groups were higher than those of health control. Before any treatment, the secretions of IFN-γ and TNF-α by CXCR5+CD8+T cells of patients decreased significantly compared to contact and silent infection groups, and the secretions of TNF-α of patients with pneumonia were lower than those patients without pneumonia. Our results suggested that adequate responses of CXCR5+CD8+T cells were linked to the elimination of HAdV7 infection, and impaired cytokine secretions of CXCR5+CD8+T cells were related to the development of pneumonia, and decreased TNF-α levels may have early diagnostic value for the development of pneumonia. This research expanded our immunological understanding after HAdV infection.

Biography

Wei-wei Chen has completed her PhD from Medical School of Chinese PLA, Beijing, China. She is the Vice Director of Treatment and Research Centre for Infectious Diseases in 302 Military Hospital of China and PI for the Institute of Infectious Diseases of Chinese PLA. She has focused on *Clinical Immunology* research in respiratory virus infectious diseases, and has been in charge of clinical technical training and surveillance of infectious diseases in troops. She obtained grants from the Science and Technology Progress Award of Chinese PLA. In the current years, she concentrates on the clinical immunological characterization for flu and HAdV infection. She is also the Reviewer of *Chinese Journal for Clinicians and Infectious Diseases Information*, et al. She has published more than 60 papers including 12 SCI papers in the journals such as *Clinical Immunology, BMC Infect Dis, AIDS, Plos One* and so on.

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