

투석환자의 단핵구에서 기원한 유도 수지상 세포를 이용한 획득성 면역 장애에 대한 연구

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Defective Monocyte Derived Dendritic Cell Function in Patients with Hemodialysis: a Culprit for Underlying Defective Acquired Immunity

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The adaptive immune response is initiated with antigen presentation by dendritic cells (DC) that play a sentinel role in linking innate and adaptive immune response. Patients with hemodialysis (HD) are known to be susceptible to infection and frequently have suboptimal response to vaccination. To gain insight on defective immune function in ESRD patients, we examined the function of DC in patients with HD and compared with that of healthy control. CD14 positive monocytes from healthy control and HD patients were isolated by using automated magnetic cell sorter (MACS) and differentiated into DC under the condition of GM-CSF and IL-4. These monocyte derived dendritic cells (MoDC) were further stimulated by cytokine cocktail to induce maturation. The function of mature MoDC were assessed by comparing the surface expression of major histocompatibility complex (MHC class II), costimulatory molecule CD86 and maturation marker CD83 and CCR7 by 4 color flow cytometry. In addition, allostimulatory capacity of MoDC was examined by mixed lymphocyte reaction (MLR). Average of Hb, CRP, albumin, BUN, Creatinine in HD were 9.9 g/dL, 6.53 mg/L, 4.1 g/dL, 69.1 mg/dL, 11.5 mg/dL. Immature uremic MoDC produces higher level of cytokines, IL-6, IL-8, IL-1 β than that of control (average level, 33.4 vs. 78.8, 4074.8 vs. 8217.5, and 2.72 vs. 4.98, respectively). Mature uremic MoDC also produces higher level of cytokine, TNF- α than that of control (average level, 1.68 vs. 2.82). Uremic MoDC showed decreased cell viability and reduced surface expression of CD83, CD86 and CCR7 compared to MoDC from healthy control. However, despite these reduced surface maturation marker expression, these uremic MoDC showed paradoxically enhanced allogenic T cell proliferation. These data demonstrate the positive proof of defective immune function in patients with HD. Strategy that can modify this abnormal immune response may reduce the morbidity and mortality caused by infection.

Key Words : 만성 신부전, 투석, 획득성면역
CKD, Hemodialysis, Acquired immunity