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CD11c양성 수지상 세포가 면역세포유도 ischemic preconditioning에 미치는 영향에 관한 연구

고려대학교 의과대학 내과학교실[1], 을지대학교 의과대학 내과학교실[2]

조상경[1] · 김명규[1] · 이소영[2] · 조원용[1] · 김형규[1] · 고윤숙[1] · 이희영[1]

Depletion of CD11c+ Dendritic Cell Mitigates Immune Cell Mediated Ischemic Preconditioning

Sang-Kyung Jo[1], Myung-Gyu Kim[1], So Young Lee[2], Won Yong Cho[1]
Hyoung Kyu Kim[1], Yoon Suk Ko[1], Hee Young Lee[1]

Department of Internal Medicine[1], Korea University Medical College
Department of Internal Medicine[2], Eulji Medical College

Dendritic cells (DCs) are a heterogenous group of cells with a dynamic phenotypic alteration. Recent reports have suggested a tolerogenic potential of DCs in various injury models. The purpose of this study was to examine the mechanisms of tolerance, focusing on peripheral immune responses and also to examine the role of DCs in tolerance induction in kidney ischemic preconditioning. C57/BL6 mice underwent bilateral ischemia or sham-operated on day 0 and then were subjected to additional ischemia on day 7 (sham+I/R vs. I/R+I/R). Preconditioned animals (I/R+I/R) had reduced tubular injury with less inflammation. Splenocytes from tolerogenic animals (I/R day 7) had an increased percentage of CD4+ CD25+ Tregs with higher IL-10 production. Splenocytes from tolerogenic animals also had a reduced proliferative response upon TCR stimulation and an impaired cytokine response upon LPS stimulation, suggesting a state of profound immunosuppression. Additionally, to define the role of DCs in tolerance induction, liposome clodronate (LC) was injected after initial I/R. The intravenous injection of LC resulted in depletion of blood CD11c+ CD11b+ DCs, and depletion of DCs was associated with a partial loss of the beneficial effect of ischemic preconditioning. An increased percentage of splenocyte Tregs with higher IL-10, or a decreased proliferative or cytokine secretory response upon stimulations observed in splenocytes from tolerogenic animals (I/R day 7) were partially reversed in splenocytes from DC-depleted animals (I/R+DCdep day 7), suggesting that DCs contribute to immune cell-mediated ischemic preconditioning. Our results showed that kidney I/R injury provides a negative signal to the peripheral immune system that is partially mediated by DCs, and this DC-mediated immune modulation might contribute to ischemic preconditioning.

Key Words : 수지상 세포, 혀혈성 조건, 면역조절 T 임파구
Dendritic cell, Ischemic precondtioning, Regulatory T cell