

신허혈/재관류 이후 수지상세포의 소멸이 급성신손상 회복기에 미치는 영향

고려대학교 의과대학 내과학교실 신장병연구소

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Late Depletion of Renal Dendritic Cell Impairs Recovery Process after Renal Ischemia/Reperfusion Injury

Boo Chang-Su, Kim Hye Won, Choi Hye Min, Woo Young-Seok, Jo Sang-Kyung, Cho Won Yong, Kim Hyoung-Kyu

Korea university College of medicine Department of internal medicine The institute of renal disease

Introduction : Although immune responses are known to be important in mediating renal ischemic- reperfusion injury (IRI), the role of dendritic cells (DCs) has not been extensively studied. DCs are the major antigen presenting cells of the immune system, with the unique capacity to trigger T cell responses and recent studies have provided evidence of potential role of DCs in mediating kidney injury. However, DCs are also known to be able to modify T cell response. The purpose of this study was to examine the role of DCs in recovery or regeneration after I/R.

Methods : C57/BL6 mice underwent bilateral renal ischemia (28min) and at 24 hrs and 72 hrs after reperfusion, liposomal clodronate (LC) or PBS vehicle was administered intravenously. At day 7 after reperfusion, animals were sacrificed and biochemical and histological renal damage was assessed. Tissue cytokine and chemokine levels were measured by cytometric bead array (CBA). Using flow cytometry, the degrees of activation and depletion of DCs were measured.

Results : Renal IRI resulted in maturation of dendritic cells reflected by increased number of CD80, CD86 and HLA DR positive CD11c populations. Delayed administration of LC induced significant depletion of CD11c(+)DC in the kidney. Although plasma creatinine levels were not different between LC and PBS treated animals, depletion of DCs was accompanied by persistent histological renal damage reflected by high tubular injury score and increased number of apoptotic cells. The number of renal F4/80 positive macrophage and neutrophils were also higher in LC treated animals, suggesting that there is a persistent inflammation. Among proinflammatory cytokines, tissue level of IFN- and IL- 6 was significantly higher in DC depleted animals and by contrast, anti- inflammatory cytokine IL- 10 showed decreased tendency in DC depleted animals.

Conclusion : These results suggested that IRI promoted the maturation of DCs and mature DCs might be involved in recovery process after IRI by modulating inflammatory response. Further study, possibly involving CD11c reconstitution after depletion will give better insight about the role of renal DCs in kidney I/R injury.

Key Words : 허혈 재관류 손상, 수지상세포, 회복기
IRI, Dendritic cell, Recovery