

## 만성신장병이 급성신손상의 중등도와 회복에 미치는 영향

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김명규, 김선철, 조상경, 조원용, 김형규

### The Impact of Preexisting Chronic Kidney Disease on the Severity and Recovery of Acute Kidney Injury

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Although chronic kidney disease (CKD) is considered to be a risk factor for acute kidney injury (AKI), high burden of comorbidities such as old age, diabetes and hypertension or repeated exposure to nephrotoxic insults in patients with CKD makes it difficult to prove direct causality of CKD as a risk factor of AKI. Here in this study, we assessed the impact of preexisting CKD on the severity and recovery of AKI in mouse model of 5/6 nephrectomy. Male CD-1 mice underwent 5/6 nephrectomy or sham operation, and 6 weeks later ischemia reperfusion injury (IRI) was performed. On day 1 and 7 after IRI, functional, histological, and molecular parameters were compared between them. Twenty minutes clamping of renal pedicle in 5/6 nephrectomized mice did not provoke more severe functional, histological deterioration compared to normal mice. Neutrophil or macrophage infiltration was also comparable between the two groups. However, despite lack of intrinsic susceptibility of diseased kidney to IRI, serum creatinine on day 7 after IRI was significantly elevated in 5/6 nephrectomized mice compared to normal mice, suggesting that preexisting CKD adversely affect the recovery process. Relative abundance of mRNA expression of arginase-1 representing predominant infiltration of M2 type anti-inflammatory, proresolving macrophage on day 7 of IRI was significantly decreased in 5/6 nephrectomized mice (CKD+AKI) compared to sham (sham+AKI), suggesting that lack of M2 macrophage is partially responsible for impaired recovery from AKI in 5/6 nephrectomized mice. Taken together, reduced nephron mass do not seem to increase intrinsic susceptibility to AKI, but have negative effect on recovery process, leading to progressive CKD.

**Key Words:** 급성신손상, 만성신장병, 대식세포

Acute kidney injury, Chronic kidney disease, Macrophage