Intensive Care Nephrology

급성신손상은 만성콩팥병의 진정한 위험인자인가?

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Does AKI Truly Lead to CKD?

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The incidence of acute kidney injury (AKI) increased over the last 20 years. Chronic kidney disease (CKD) has been known one of the most potent risk factor of AKI. However, recent epidemiologic studies have demonstrated that AKI itself could increase the risk of developing incident CKD and further end-stage renal disease. In addition, duration, severity, and frequency of AKI were recognized as important predictors for long-term renal outcomes. Even full recovery to normal renal function after AKI was associated with an increased risk of CKD. Experimental data supported causal relationship and mechanism linking AKI and CKD. In animal models, subsequent recovery after induction of acute tubular necrosis showed tubule-interstitial fibrosis by activating signaling pathway which promoted fibrosis.

Critics insist that the association between AKI and CKD was confounded by various variables which were inevitable in retrospective study. Most observational studies used clinically available creatinine values to ascertain AKI and CKD status and the creatinine values had limit to differentiate acute from chronic disease. Unfortunately, prospective observational study has not been reported, which could lead to ascertainment bias in terms of over-estimation of CKD development.

Nevertheless, it is evident that patients with AKI share several common risk factors: obesity, metabolic syndrome, diabetes, hypertension, cardiovascular disease and microalbuminuira - factors that also increase the risk for CKD development. CKD often predisposes to AKI and Patient with CKD shows worse renal outcomes after AKI. Recently published data support the concept of bidirectional relationship between AKI and CKD. Therefore, is should be considered that AKI and CKD are not separate disease entities but integrated clinical syndromes of diminished renal function affecting renal and patient outcomes. Recognition of the prognostic importance of AKI for progression to CKD has important implications to nephrologist. The development of new tools to stratify the risk of CKD progression after AKI is also needed.