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AKI on CKD: insights from diabetic models

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Acute kidney injury (AKI) and chronic kidney disease (CKD) are inter-connected syndromes, rather than separate renal diseases. On one hand, AKI is a risk factor and accelerant for CKD; on the other hand, CKD is an important comorbidity of AKI that determines the poor prognosis of AKI. Both experimental and epidemiology studies have demonstrated that AKI is more severe and hard to recover when occurring in patients with comorbidities including CKD, diabetes, aging, and hypertension; however, the underlying mechanism is unclear. Recent research has suggested the involvement of inflammation mediated by HGBM1 and TNF-a in the AKI susceptibility of CKD and diabetic models. Moreover, at the cellular level, hyperglycemia-related p53 overactivation and mitochondrial damage may contribute as well. Thus, the poor prognosis of AKI on CKD may be related to the systemic changes in inflammation and the cellular changes of renal tubular injury sensitivity