

AKI-AKD-CKD continuum – chance to intervene

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Acute kidney injury (AKI) affects about 20-200 per million people in the community setting and the incidences are much higher in hospitalized patient population. AKI is estimated to result into a worldwide death toll more than 2 million people annually. Besides being fatal, acute kidney injury also increases the risks of chronic kidney disease (CKD) and end stage renal disease (ESRD) among survivors and thus casts large disease burden on health care system. Over the past decades, nephrologists worldwide had reached to consensus on AKI and CKD and the Kidney Disease Improving Global Outcomes (KDIGO) guidelines define AKI as abrupt deterioration of renal function within a period of 7 days or less and CKD as persistent renal function impairment or structural abnormalities for more than 90 days. Growing evidences from basic studies suggests that AKI and CKD are interconnected and more and more researches focus on the mechanisms of AKI-to-CKD transition. Acute kidney disease (AKD), defined as the ongoing renal function impairment between 7 days and 90 days following AKI, has been proposed for years. Many chronic kidney diseases of unknown origin (CKDu) may result from AKD. However, the exact consensus definition of AKD has not been provided until recently. Although the 16th Acute Disease Quality Initiative (ADQI) recommends definitions and staging criteria for AKD and renal recovery, the natural history, endophenotypes within AKI and AKD, and the effective therapeutic intervention to prevent occurrence of CKD remain largely unknown.

We suggested a prospective study to delineate the AKI-to-AKD transition, identify modifiable clinical factors, and develop practical therapeutic interventions which can be translated into health policies that reduce the burden of chronic kidney disease (CKD). We hypothesized that different outcomes of AKI may result from genetic heterogeneity, immune dysregulation and persistent dysfunction of mitochondria. We suggested to establish a health information system (HIS)-based electronic alert system which can automatically identify patients with incident AKI during hospitalization and follow-up serial changes of renal function. A system with multidisciplinary team (MDT) care during hospitalization and acute kidney disease (AKD) clinic follow-up after discharge will be established. The action will surely have a great impact on the AKI-AKD-CKD continuum care.