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Long-term health outcomes of acute kidney injury

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Acute kidney injury (AKI) occurs in 5–10% of hospitalized patients and in more than 30% of critically ill patients. The increase in annual AKI incidence results in interrupted treatment for comorbidities, an increased risk of acute renal replacement therapy (RRT), longer hospital stay, an increased burden of medical costs, and increased mortality rates. AKI is an independent risk factor for mortality; among critically ill patients, the mortality rate is 50%. In addition, the mortality rate is as high as 80% when patients undergo RRT due to AKI.

Furthermore, AKI patients show higher risks of progression to chronic kidney disease (CKD) or end-stage renal disease (ESRD); there are several studies regarding long-term outcomes such as mortality, progression to CKD or ESRD after AKI episode. According to a recent Canadian report, the number of patients receiving continuous RRT (CRRT) increased from about 20% to 40%. All-cause mortality was significantly decreased with time; however, dialysis dependence showed a decreasing tendency in the most recent years. According to the results of the meta-analysis of 25 studies analyzing cardiovascular (CV) events and mortality for a total of 55000 AKI patients, AKI increased the CV events from 1.2 to 1.9 folds. Recent study also reported that the risk in the AKI patients is greater than that of stage 3 CKD patients who did not undergo an AKI episode, and the risk is exacerbated when AKI patients experience more episodes and more severe injury.

In particular, age is an important risk factor for progression to CKD after AKI episode. The long-term survival of AKI patients is getting worse with age. According to the systematic review and meta-analysis results, patients over 65 years of age were risk factors for renal function recovery; the same results were obtained with intermittent hemodialysis or CRRT, and both short-term and long-term recovery showed the same results.

In conclusion, careful management of risk factors for cardiovascular events, progression to CKD/ESRD, and mortality, and regular follow-up for AKI survivors, are required.