

Renal Replacement Therapy in Critically Ill Patients with AKI



Many critical care patients with severe acute kidney injury (AKI), especially those who develop refractory complications, receive renal replacement therapy (RRT). However, when RRT should be initiated for these patients remains unclear. There is a consensus that in patients with urgent or refractory complications, RRT should be started. However, the question is: should it be started earlier in the course of AKI to prevent complications or should it be delayed and used when complications arise? Also, which patients should be given this treatment? Those with a higher probability of clinical benefit and improved outcome? Should it be avoided in patients who may not benefit from it or who may be at a greater risk of experiencing harm from it?

Clinical evidence shows that an earlier RRT initiation strategy does not offer a survival advantage and can, in fact, increase the risk of dialysis dependence and bacteraemia. Several clinical trials support the notion that deferral of RRT should be the default strategy and that clinicians should wait and watch and only initiate its use in case of complications.

The Artificial Kidney Initiation in Kidney Injury-2 (AKIKI-2) trial compared two strategies for delayed RRT initiation in 278 patients. Patients fulfilled criteria for Stage 3 AKI and were either receiving mechanical ventilation and/or vasopressors. Patients were randomised to **delayed RRT** started within 12 hours of randomisation, or **more delayed RRT** only started when an urgent indication emerged. The primary outcome of the study was days-alive and RRT-free from randomisation through 28 days. Secondary outcomes included ventilator-free days, ICU stay or kidney recovery.

Findings show that RRT-free days did not differ between the delayed strategy and the more delayed strategy. No differences were observed in secondary endpoints either. The more-delayed strategy was found to increase the hazard of death compared to the delayed strategy. Higher mortality with the more-delayed strategy could be driven by factors such as prolonged untreated AKI, non-renal organ dysfunction and modified recovery from critical illness.

AKIKI-2 findings suggest that serum urea as the primary trigger is not ideal for identifying the optimal timing of RRT. Overall, findings suggest that while a watch and wait strategy may be acceptable in patients, there are limitations and harm to protracted delays in RRT initiation in patients with severe and persistent AKI. Therefore, it is important for clinicians to integrate a patient's evolving illness, their response to interventions, the trajectory of AKI, the likelihood of recovery and patient and family preferences for care when determining when RRT should be initiated.

Source: [Critical Care](#)

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