Early renal replacement therapy in acute kidney injury: a piece in the puzzle

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Since renal replacement therapy (RRT) begins to be used, there is no doubt it is a procedure that safe lives. In the last years, an intense debate emerged about the optimal timing of starting RRT in critically ill patients with acute kidney injury (AKI) (1).

Recently, 3 large randomized clinical trials had conflicting results. The Early Versus Late Initiation of Renal Replacement Therapy In Critically Ill Patients With Acute Kidney Injury (ELAIN) trial was a single-center trial comparing early RRT [starting within <8 hours of fulfilling Kidney Disease: Improving Global Outcomes (KDIGO) stage 2 AKI] with delayed RRT (starting within <12 hours of developing KDIGO stage 3 AKI or upon an absolute indication) (2). In this study, there was a significant 15.4% reduction in 90-day mortality in the early RRT group. However, in two other large multicenter trials (Artificial Kidney Initiation in Kidney Injury—AKIKI 1 and 2) no survival benefit was demonstrated (3,4). However, there is a significant difference between ELAIN and AKIKI trials: the early arm in AKIKI trials started RRT later than the delayed arm in the ELAIN trial. In this setting, AKIKI 2 trial arms delayed even more than RRT starting.

Besides timing of initiating early RRT, ELAIN trial has another significant difference when compared with the AKIKI trials: a low percentage of patients allocated to delayed arm that not received RRT—9.2% against up to 50% in the AKIKI trial. At this last point, it is the main contribution of the paper published by Tu et al. (5) in this journal. In this retrospective study, the authors evaluate an early vs. late strategy to initiate RRT in patients with cardiogenic shock after open heart surgery. When evaluating a group of patients with severe hemodynamic derangement, the authors had a significant advantage to compare two different strategies of starting RRT: although not being a randomized controlled study, the 2 patients within two distinct periods had similar percentage of patients needing RRT during ICU stay—66% in the first period vs. 61% in the second period. Even being RCT, AKIKI studies were not able to avoid this confounder. In fact, this cannot at the moment be considered a confounder because it is a consequence of the proposed treatment strategy.

The closer number of patients requiring RRT between different groups during study period is probably the explanation because early RRT was associated with better survival in Tu et al. study and ELAIN trial, but not In the AKIKI trials. So, the complete interpretation of the cited studies suggest early RRT is beneficial if we are able to identify those patients who will have metabolic or volemic indications during ICU stay and avoiding delayed initiation of RRT. In other words, the question can move from if early RRT is beneficial but how to identify patients who will need RRT and initiate early RRT in these patients, or as the title of the commented article suggest: “pre-emptive RRT can reduce mortality…” in those whom will need it.

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Footnote

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References
