

LETTER

# Does renal replacement therapy increase mortality in the ICU?

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Renal replacement therapy (RRT) is associated with potential risks such as hypotension, catheter-related complications, hemorrhage and blood–extracorporeal circuit interactions. Several studies, however, have shown that early RRT in acute kidney injury (AKI) is associated with a better outcome in intensive care unit (ICU) patients [1-3].

A recent retrospective study published in *Critical Care* has questioned the use of RRT in critically ill patients, including those with severe AKI [4]. Compared with conservative treatment, RRT patients showed a higher mortality. The indication for RRT was at the discretion of the physician, and patients receiving RRT presented higher severity and renal impairment scores. After multivariate analysis correcting for severity of illness (Acute Physiology and Acute Chronic Health Evaluation II score and Sequential Organ Failure Assessment score), mortality

remained higher in RRT patients. In a multivariate analysis in septic shock patients, however, we observed that both severity scores are not related to mortality, contrary to the maximum Sequential Organ Failure Assessment score [5]. The decision of starting RRT in many patients during their ICU stay may have been related to evolving factors not included in the analysis (worsening severity, overload, progressing hypoxemia, and so forth), which affect mortality but are not detected in the initial *snapshot* assessment. For instance, it is inconceivable that anuric patients did not receive RRT. On the other hand, the use of RRT in some patients with mild renal impairment may have increased morbidity.

The study underlines the idea that RRT is not necessary in many patients presenting mild AKI in the ICU, but may be misleading if we accept that this therapy is deleterious in general.

## Authors' response

Monique M Elseviers and Robert L Lins

We appreciate the comments of Dr Pestaña and understand his concerns about a possible misinterpretation of the results by considering our findings in too general a manner.

First, however, we have to rectify that the overall Stuienberg Hospital Acute Renal Failure results published in this journal did not derive from retrospective observations but from a *prospective* study of 1,303 AKI patients consecutively admitted to the ICU. Furthermore, disease severity was initially investigated using the Stuienberg Hospital Acute Renal Failure score [6]. This validated AKI-specific severity scoring system proved to have high performance in comparison with other general and specific severity scores [7]. It was only additionally

that we corrected for Acute Physiology and Acute Chronic Health Evaluation II and Sequential Organ Failure Assessment scores, both showing only a limited predictive value for mortality.

We agree with Pestaña that in some of the critically ill AKI patients, the indication to start RRT treatment is clearly established. Recent reviews, however, demonstrated that the available literature remains inconclusive regarding the optimal indications for RRT in AKI patients [8,9]. Arguably only metabolic acidosis, hypervolemia and hyperkalemia that do not respond to other forms of therapy are absolute indications for initiation of RRT [8].

In the Stuienberg Hospital Acute Renal Failure study, we determined RRT as an independent risk factor for mortality. In view of the current lack of evidence for initiating RRT, we tried to formulate our recommendations carefully – stating only that a more critical approach to the need for RRT in AKI patients seems to be warranted, and pleading for an individualized approach in each patient.

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#### Abbreviations

AKI, acute kidney injury; ICU, intensive care unit; RRT, renal replacement therapy.

#### Competing interests

The authors declare that they have no competing interests.

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