DIALYSIS

Urine output predicts successful cessation of CRRT

Urine output at the time of cessation of continuous renal replacement therapy (CRRT) seems to be the best predictor of successful discontinuation of CRRT, according to a study published in *Critical Care Medicine*. Corresponding author Rinaldo Bellomo states that such information "can help clinicians decide when to remove the dialysis catheter".

As few data exist on the optimal time to discontinue CRRT, Bellomo *et al.* decided to investigate the current practice of CRRT discontinuation around the world, to determine which variables might be useful predictors of successful discontinuation. Their study was a post hoc analysis of the BEST Kidney (Beginning and Ending Supportive Therapy for the Kidney) study, a multicenter, prospective study involving 1,006 patients aged ≥12 years treated with CRRT for acute kidney injury (AKI) in 54 centers in 23 countries between September 2000 and December 2001.

In total, 529 patients who discontinued CRRT in the BEST Kidney study were included in the current analysis. Of these, 313 patients were successfully removed from CRRT and did not require renal replacement therapy (RRT) at 7 days after discontinuation, and 216 patients required further RRT within 7 days. On CRRT discontinuation, investigators measured various physiologic and laboratory parameters, including mean arterial pressure, central venous pressure, urine output, creatinine level and potassium level, and recorded the reasons for CRRT discontinuation.

Hospital mortality was lower in patients successfully removed from CRRT than in those requiring further RRT (28.5% versus 42.7%). In addition, patients successfully removed from CRRT had a higher urine output and a lower creatinine and urea level at the time of CRRT cessation than patients who required further RRT within 7 days. On multivariate logistic regression analysis, urine output in the 24 h before CRRT discontinuation was the most significant predictor of successful CRRT discontinuation (odds ratio 1.078 per 100 ml/day; $P<0.0001$). Decreased creatinine level was also a significant predictor of successful discontinuation (odds ratio 0.996 per μmol/l increase; $P<0.0005$). Receiver operating characteristic curve analysis showed that the ability of urine output to predict successful CRRT discontinuation was much better than that of creatinine, but that diuretic use impaired the ability of urine output to predict successful CRRT discontinuation. The researchers found that a urine output of >400 ml/day in patients not on diuretics and a urine output of >2,300 ml/day in patients on diuretics was associated with a >80% chance of successful CRRT discontinuation.

The findings from this study will be compared with data from the randomized, controlled RENAL trial. "If these findings are confirmed, we can issue practice guidelines to help clinicians make decisions," states Bellomo.

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Original article Uchino, S. *et al.* Discontinuation of continuous renal replacement therapy: a *post hoc* analysis of a prospective multicenter observational study. *Crit. Care Med.* **37**, 2576–2582 (2009).