CRRT in the Surgical ICU – Duration and Mortality

For general surgery patients in the surgical ICU, the chances of survival to discharge decrease with each day of continuous renal replacement therapy (CRRT), according to a study in JAMA Surgery.

The retrospective study included 108 surgical ICU patients receiving CRRT at a tertiary care medical center from 2012 to 2016. The patients were 64 men and 44 women, mean age 62 years. Fifty-three patients were treated before or after general surgery; the remaining 55 were admitted before or for evaluation of liver transplantation.

Survival to discharge after differing durations of CRRT was evaluated.

In the general surgery group, mean duration of CRRT was 3.2 days for patients who survived to discharge versus 7.2 days for those who died. Twelve general surgery patients required at least 7 days of CRRT; all of them died. Number of days of CRRT was the only factor independently associated with mortality; odds ratio 1.39 per day.

In the pretransplant group, mean duration of CRRT was 6.4 days for patients who survived or had a liver transplant compared to 8.0 days for those who died—a nonsignificant difference. Of 22 patients who required at least 7 days of CRRT, 13 died, for a mortality rate of 59.1%. In this group, the need for vasopressor therapy during CRRT was the only independent predictor of mortality; odds ratio 3.75.

The authors hypothesized that among patients admitted to a surgical service, there would be some duration of CRRT beyond which further treatment is futile. The new results suggest that, among general surgery patients admitted to a surgical ICU, the chances of survival decrease with each day of CRRT, and that continued treatment after 6 days may be futile.

In contrast, for patients with an identifiable, reversible indication such as liver failure before transplantation, duration of CRRT is not directly related to mortality. The study “supports the prolonged use of CRRT in patients who are admitted in anticipation of liver transplant,” the researchers conclude. (Tanaka JM, et al. Analysis of survival after initiation of continuous renal replacement therapy in a surgical intensive care unit. JAMA Surg 2017; 152: 938-943.)