Implementation of a CRRT Program: A University and Community Hospital Collaboration

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Introduction

Continuous renal replacement therapies (CRRT) are increasingly being used in intensive care units for a variety of indications. CRRT gradually removes excess volume and toxins, is tolerated better in hemodynamically unstable patients and may be associated with improved outcomes in selected patient populations.

In July 2013 Meritus Medical Center instituted an intensivist model for the medical/surgical intensive care unit with physician staffing from the University of Maryland. Analysis showed that about once a month a patient was transferred to another hospital for CRRT or had difficulty tolerating intermittent hemodialysis. A proposal to bring CRRT to our unit was made and administration agreed to support a program. Although enthused about bringing a CRRT program to our unit, our nursing staff had some valid concerns. These included: limited history of exposure to CRRT, education and training requirements, and sustainability with adequate case volume to maintain competency and ensure program survivability.

Methods

A comprehensive plan was developed to educate, train and implement CRRT in our unit. Our intensivists with backgrounds in CRRT gave introductory lectures to nursing and a core group of eight nurses went to the University of Maryland Medical Center to shadow nurses managing patients receiving CRRT.

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Methods

Our nurses completed an on-line course and received on-site training by our equipment supplier (Prismaflex). Our nurses have also established “CRRT Buddies” at the University who have volunteered to be available for questions. Our first patient was placed on CRRT in September 2014.

Results

Our first treatment was performed in September 2014 and since the implementation of our program we have treated ten patients. We have averaged two CRRT cases per month. Admission diagnosis for patients that have gone onto CRRT have included sepsis, cardiac arrest, acute kidney injury, and end stage renal disease with massive volume overload and hypotension. Indications for therapy have included acute kidney injury, volume overload, acidosis, and end-stage renal disease with hypotension.

We have managed all patients without anticoagulation. CVVH and SCUF have been the modalities used to date. For CVVH we have generally provided replacement fifty percent pre filter and fifty percent post filter. Replacement has been dosed at 20 – 30 ml/kg/min for most applications. Septic patients have been dosed at 45 ml/kg/min. Although we have not used anticoagulation to date, a heparin protocol exists and a citrate protocol is waiting final approval.

Therapy has been started within two hours of physician orders in most cases. Consent and venous access have been the only delays to date. We report no significant down time or complications in the early stages of our program.

Results

Currently eight nurses are trained to provide the therapy and an additional eight nurses are scheduled for training. All trained nurses have managed patients on CRRT. All future training will occur on site. Continuing education will include in-service exams and yearly refresher training. Nursing has reported continued enthusiasm in support of the CRRT program.

Conclusions

Our unit has successfully implemented a CRRT program. We are currently managing about two patients a month and have used the therapy for a variety of indications. All future nurse training will occur on our campus. Our medical director has established a case registry for purposes of quality management and cost analysis.

References

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