Multidisciplinary Optimization of Continuous Renal Replacement Therapy Outcomes

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Introduction

- Continuous renal replacement therapies (CRRT) are performed for 24 hours a day in an intensive care setting.[1]
- CRRT treatment options vary by mechanism of solute transport, membrane type, and by dialysate and replacement solution use.[1,2]
  - Currently, there is considerable variation in prescription and use of CRRT.
- We established a multidisciplinary task force at an 886-bed hospital in Los Angeles, CA, with the goal of establishing guidelines for the appropriate use of CRRT, creating protocols for CRRT initiation, and assessing utilization.

Objectives

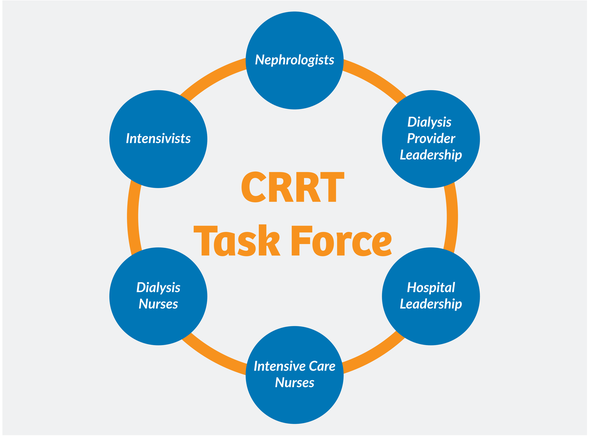
- To promote the optimization of delivery of CRRT using a multidisciplinary approach
- To assess outcomes among CRRT patients following implementation of CRRT guidelines

Methods

- The CRRT task force was comprised of nephrologists, intensivists, dialysis and intensive care registered nurses, as well as leadership representatives from both the hospital and dialysis provider (Figure 1).
- Meetings were held monthly and guidelines were established for the use of CRRT.
- The following outcomes were assessed longitudinally following task force establishment:
  - Percentage of patients with recovered kidney function
  - Percentage of patients who died or transitioned directly from CRRT to palliative care
  - Average length of CRRT treatment

Results

Figure 1. Multidisciplinary CRRT Task Force



- The CRRT task force established the following required processes:
  - Formal agreement between the ordering nephrologist and the overseeing intensivist before initiation of CRRT
  - Daily assessment of continuing need for CRRT by intensive care team, intensivist, and nephrologist
  - Formal agreement between the ordering nephrologist, the overseeing intensivist, and the attending physician before withholding or discontinuation of CRRT
  - Monthly review of CRRT outcomes
  - Use of agreed upon protocols in case of emergency
- Following implementation of the task force:
  - The percentage of patients who recovered kidney function during the course of CRRT increased from 12.4% to 40.9% (Figure 3).
  - The percentage of patients who died on CRRT or transitioned directly from CRRT to palliative care decreased from 53.7% to 36.1%.
  - The average length of CRRT treatment was also reduced significantly.
  - Participants in the task force reported high levels of engagement.

Figure 2. Established CRRT Guidelines

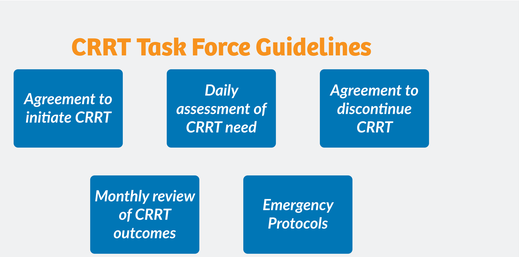
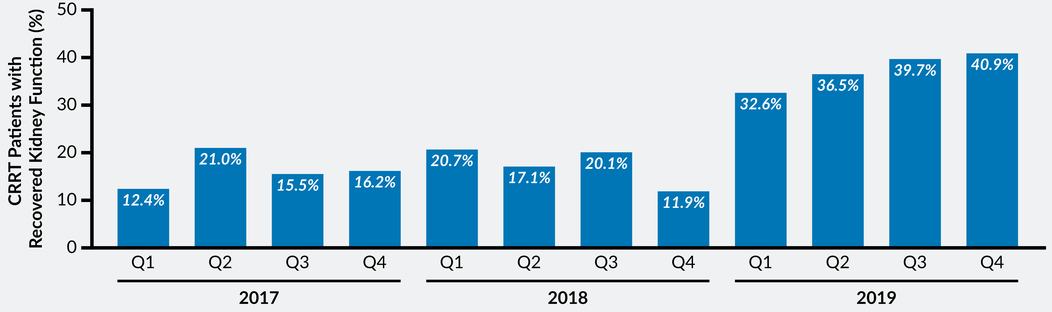


Figure 3. Recovery of Kidney Function among CRRT Patients after Task Force Establishment



Conclusions

- A multidisciplinary task force established processes for CRRT patient selection, daily monitoring, and post-hoc review.
- Improved CRRT outcomes and caregiver satisfaction were observed following implementation of the task force guidelines.

References

1. Pannu N, Gibney RN. Renal replacement therapy in the intensive care unit. *Ther Clin Risk Manag*, 1: 141-150, 2005.
2. Allegretti AS, Steele DJ, David-Kasdan JA, Bajwa E, Niles JL, Bhan I. Continuous renal replacement therapy outcomes in acute kidney injury and end-stage renal disease: a cohort study. *Crit Care*, 17: R109, 2013.

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