

Continuous Renal Replacement Therapy Education to Improve Parental Understanding and Satisfaction

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Abstract

Initiation of pediatric continuous renal replacement therapy (CRRT) for a critically ill child represents an escalation in level of care that may be anxiety provoking for families. Despite a detailed procedural explanation performed by a nephrologist before initiating CRRT, there is no currently available means by which to measure basic parental/guardian understanding and comfort level pertaining to performance of CRRT. Additionally, while there is literature describing means by which to educate members of the hospital care team, no published literature exists demonstrating an approach to educating families about CRRT. We have developed an informational handout in both English and Spanish to be given to the families of our patients who are treated with CRRT. Complementing the patient education material is a guide for nurses educating the family. We hypothesize that provision of this handout will help alleviate anxiety – especially those associated with alarms/display panels/lines - and increase understanding of provision of CRRT to a child with acute kidney injury (AKI). To determine the effectiveness of supplying this additional information to families, we plan to proceed with our usual standard of care to each patient, which includes a detailed procedural explanation performed by a nephrologist/fellow before initiating CRRT when consent is obtained. For patients less than 18 years age, our study team will approach the family to obtain consent for participation, after which a family member will complete a brief Likert scale-based survey to determine their basic understanding of AKI, the CRRT procedure, medical team members involved, and comfort level with the procedure. Upon completion of the survey, the study team will provide the family with our informational handout. Laminated copies of the handout will be attached to the CRRT machine and maintained in the patient's room for others to view as well. 24-48 hours after the handout is introduced, the family member will be re-surveyed to determine if the handout helped provide informative information. We plan to enroll 20 patient families, analyze our results, including determination of mean scores for each survey point, assessing for pre- and post-intervention significance ($p < 0.05$).

Background

- CRRT education literature largely focused on new program startup and training staff to perform CRRT^{1,2,3}
- No literature identified detailing educating patient/family about CRRT in pediatric or adult medicine
- No literature regarding patient/family attitudes & perceptions surrounding CRRT in pediatric or adult medicine
- Studies indicate high parental/familial stress surrounding ICU admissions based on stress-anxiety related scale⁴
- Studies indicate education programs help reduce hospital-related situational stress and improve satisfaction^{5,6,7,8}

Objectives

- Evaluate family perceptions surrounding CRRT before & after providing a CRRT educational handout
- Improve patient/family understanding of CRRT
- Reduce patient/family anxiety regarding CRRT

Methods

- After the decision to initiate CRRT is made and consent has been obtained by the nephrology team, patient family members will be approached to participate in the CRRT Patient Care Quality Improvement Project (QIP)
- 20 families will be recruited for the QIP
- After consent is obtained from a parent/guardian, a study coordinator will review the CRRT educational handout with the family, leaving copies with the family and attached to the CRRT machine
 - The CRRT educational handout will be available in both English and Spanish formats
- Prior to and 24-48 hours after review of the handout, a Family AKI/CRRT Comprehension Questionnaire (developed for this QIP) and the State-Trait Anxiety Inventory and will be administered

Results

- STATISTICA© software will be used to analyze the pre- and post-intervention significance ($p < 0.05$) of both the inventory and questionnaire results

Conclusions

If the statistical analysis of the QIP demonstrates a significant improvement in family AKI/CRRT comprehension and/or a reduction in anxiety related to CRRT, then a departmental program will be instituted for the purpose of training nephrology faculty, fellow, and nursing staff participating in delivery of CRRT so that families of children undergoing CRRT may continue to benefit from additional education pertaining to their child's medical condition and treatment.



Continuous Renal Replacement Therapy (CRRT)

When a child is very ill, sometimes his or her kidneys stop working the right way. If your child's kidneys are not working correctly, his or her body may be unable to get rid of waste products and extra water. This can become dangerous, and makes it harder to get better.

Continuous renal replacement therapy (CRRT) is a gentle form of non-stop dialysis. CRRT is used to remove waste products and extra water that build-up when kidneys do not work the way they should. CRRT may help:

- Remove extra fluid in the body
- Balance blood electrolyte levels, like sodium and potassium
- Maintain a neutral acid/based (pH) balance
- Receive all the nutrition needed to help best recover

A special team of kidney doctors and dialysis nurses do CRRT for your child. CRRT is only done in the ICU. Kidney doctors and dialysis nurses work with your ICU doctors and nurses to help manage the treatment.

CRRT requires a special line called a hemodialysis catheter, which goes into a blood vessel. Your child's blood is pumped very slowly through the catheter and into a CRRT machine. The blood goes through a filter that helps get rid of waste products. The extra fluid and waste products removed by CRRT are collected in bags. These bags hang under the machine. The bags are changed when they get full.

CRRT works best when your child holds very still. This lets blood flow freely through the catheter. Your child may be given extra sedating medicine to help stay very calm and still. CRRT is a painless procedure. Your child will not feel any pain or discomfort due to CRRT.



A special machine is used to do CRRT. The machine is designed to provide as safe a treatment as possible for your child. Safety alarms in the machine may beep loudly. The alarms are checked by your child's nurse to make sure the machine is running correctly. Different things alarm beeping means may include:

- Time to change bags on the machine
- Your child needs to be repositioned to help blood flow better

A dialysis nurse checks on the machine many times each day. The dialysis nurse may also be called to help with machine alarms.

CRRT machine tubing is usually changed every 3-4 days. If there is an issue with the machine's operation, sometimes the tubing needs to be changed sooner. As your child gets better, both your kidney and ICU doctors will work together to decide when CRRT can be stopped.

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