The study was conducted after the one full day inter-professional simulation workshop in our institute; the pediatric department of Hamad General Hospital in Qatar. The goal was to improve the training and quality of pediatric CRRT. The inter-professional education and multidisciplinary collaborative practice improvement were planned to be incorporated within the simulation sessions.

The Prismaflex® System from Gambro is the one used in our institute for pediatric CRRT and we used 3 machines for three different scenarios run in three rooms by 3 different facilitators.

The neonatal hyperammonemia is the researcher’s scenario. In this scenario a 3 days old newborn was presented with lethargy, suspected sepsis and found to have severe hyperammonemia. The other two scenarios were 3 years old boy with neonatal sepsis and acute kidney injury and the third was 14 years old with Wilms tumor associated with acute kidney injury. Three manikins were used, the neonatal medium fidelility manikin was used in this scenario of neonatal hyperammonemia.

After theoretical background, the inter-professional team practiced hands-on the CRRT for 90 minutes. Simulation specialist (Facilitator) was facilitated the scenario over the three phases with advocacy-inquiry and plus-deleta debriefing format over 180 minutes.

The total was 36 attendees; learners was distributed to the three rooms equally with the three facilitators. The neonatal scenario learners were one nephrologist, 2 pediatric intensivists, 3 CRRT nurses and 4 PICU nurses, one CRRT technician, one Simulation technician. The facilitator is a pediatric nephrologist as well as a simulation specialist in that neonatal hyperammonemia scenario.

The inter-professional assessment by the facilitator’s checklist also showed significant improvement in the four pillars of IPE, the other two area of simulation assessment and the 2 domains of CRRT assessment through the progression from the baseline to phase 3 with P-value 0.003 from phase 1 to phase 2 and 0.0001 between phase 1 and phase 3.

This data was demonstrated in the graph below.

The aim of this work is to assess the effectiveness of the inter-professional pediatric CRRT simulation of one full day workshop in management of neonatal hyperammonemia emergency. Two main research questions the authors are trying to answer in this study:

1. Is there any significant improvement in the knowledge and psychomotor skills of neonatal CRRT by simulation training?

2. Have the learners as a team become more skilled and confident in neonatal hyperammonemia CRRT with IPE simulation-based learning?

Below are the pictures taken during the run of CRRT neonatal hyperammonemia scenario in phase 1 & 3 in order. Full scenario filming including the debriefing was recorded after verbal consent.

The flow of the scenario was started from the baseline to phase three Baseline pre-breifing: “You are in PICU during night shift. There is a newborn inside the room just transferred from NICU. The PICU nurse is inside the room with the baby. She knows all the details about the baby. Now the pediatic intensivist arrived and need to assess the baby. Other team members have no rules until they have called”. Phase 1: Team decision to start CRRT Phase 2: Day to day management and machine troubleshooting Phase 3 Recirculation of the blood to send the baby for CT scan

Two tools were used to assess the workshop learning outcome. The first was a self-assessment through a pre & post surveys distributed after the registration and at the end of the workshop respectively (Likert scale from 1 to 5 questionnaire were used). There was no identity required to fill the paper form, only the position was required. The second assessment tool was the expert assessment through a standardized checklist which filled by the facilitator just after each simulation phases. The IPE simulation assessment tool used by the facilitator was based on the Society of simulation in healthcare (SHS) criteria and it tested the major four pillars of IPE which are: Values & Ethics, Roles & Responsibilities, Communication competency: Teams & teamwork. Moreover, four other areas were assessed by the facilitator through the checklist which are; two for simulation; Immersion in the fidelity and Self-reflection in debriefing and 2 domains for CRRT; Knowledge about CRRT, Confidence in CRRT management.

T-student test was used for statistical analysis of our data through SPSS software.

The author concluded that pediatric CRRT IPE simulation training demonstrated a very effective learning tool to improve the collaborative quality of care and multidisciplinary team training and hence the patients outcome in the real situation of neonatal hyperammonemia. The author recommend IPE simulation workshop in on-site (point of care) simulation training to enhance the quality of care of complex treatment like neonatal management.

References


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References