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IPE Simulation Enhances the Quality of Care in Neonatal Hyperammonemia

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Abstract

BACKGROUND: Rapid blood clearance through continuous renal replacement therapy (CRRT) should be considered for neonatal hyperammonemia when medical therapy will not rapidly clear the ammonia and irreversible brain damage might occur. The complexity of extracorporeal blood clearance might affect the quality of care in that critical time. Inter-professional education (IPE) simulation-based training can fill the gaps of the multidisciplinary collaborative team management and improve the outcome in neonatal hyperammonemia. The purpose of this study is to evaluate the effectiveness of IPE collaborative practice in the management of neonatal hyperammonemia through the simulation training.

METHODS One full day IPE simulation workshop was conducted in our institute for pediatric CRRT multidisciplinary team quality training. The Prismaflex® System from Gambro for CRRT and neonatal manikin were used. After theoretical background, the inter-professional team practiced hands-on the CRRT for 90 minutes. Simulation specialist facilitated the scenario over three phases with advocacy-inquiry and plus-delta debriefing formats in between the phases for 180 minutes. Two tools were used to assess the workshop learning outcome. The first was a self-assessment pre & post surveys. The second was the expert facilitator's assessment through a standardized checklist.

RESULTS The results showed a significant improvement in CRRT cognitive learning and psychomotor skills among the team as documented by the pre and post surveys. Inter-professional education and collaborative practice was also improved by the third phase compared to the prior two phases and their debriefing. This was observed by the means score improvement of the standardized checklist that documented by the experts in the field.

CONCLUSIONS This neonatal CRRT simulation training demonstrated a very effective learning achievement that can improve the patient outcome in real situation of neonatal hyperammonemia. We recommend simulation workshop or in-site (point of care) simulation training to enhance the quality of care of complex neonatal management.

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