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Use of Simulation as a Tool to Enhance Patient Safety for Continuous Renal Replacement Therapy in Intensive Care Setting

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Introduction

Continuous Renal Replacement Therapy (CRRT) is common in intensive care unit (ICU). Competency in management of patients undergoing CRRT and associated emergencies is a crucial skill for intensive care nurses. This paper describes the use of simulation in CRRT training programme and its impact on staff competency and patient safety.

Objectives

To determine the efficacy of integrating simulation in CRRT training programme as a tool to enhance nurse's CRRT competency in cognitive and psychomotor domains.

Methodology

Thirteen nurses were recruited to a nine hour CRRT training which was included didactic lectures and skill demonstration sessions. The training programme last for nine months period and a simulation-based training workshop covering seven clinical alarming scenarios were introduced in the 4th month of CRRT training. Participants' competency and confidence were measured by structured questionnaire and knowledge was assessed with written test.

Result

Two nurses dropped out from the training programme due to work rotation, leaving eleven nurses in the final analysis. Data were analyzed by repeated measure MANCOVA with background information of nurses treated as covariates.
Self-perceived confidence was found significant positive within-subject linear relationship ($p=0.045$). This shows the various training interventions across the timeline are continuing elevate confidence of nurses. Besides, the length of ICU experience also put significant positive effect ($p=0.036$) on the self-perceived confidence. The self-perceived competency did not produce significant relationship along the training timeline but within-subject linear relationship ($p=0.060$) and the

length of ICU experience (p=0.056) were noted as “close-to-significant” positive results. These followed a similar trend to self-perceived confidence. There was no significant change of rated knowledge [p=0.757 (linear)] found across the training timeline. This is a proof for absence of knowledge decay along the training timeline which is a 9-month-long after the lecture delivered. Compared with conventional CRRT training programme which only include lecture and hands-on workshop. Simulation-based training on troubleshooting showed positive effect on nurse’s self-perceived confidence, knowledge level and competency level.