42747 - SIMULATION TEACHING FOR WEANING FROM CARDIOPULMONARY BYPASS

Disclosure: Grants/research support - The Physicians' Services Incorporated Foundation, Toronto

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INTRODUCTION: Full scale, high fidelity simulation has been advocated as a potential method of learning and practicing skills in the management of crisis scenarios. However because of a lack of studies showing improvement in patient care and the high cost of running a simulation center, the use of simulation as a training tool has been questioned. Transfer of cognitive and behavioral skills from the simulator to clinical settings has not been demonstrated due to the inherent difficulty of testing subjects during a "live" crisis. We propose that this limitation may be overcome by choosing a surrogate clinical scenario where crisis occurs on a routine and scheduled basis. Separation from cardiopulmonary bypass (CPB) fits these criteria. The purpose of this ongoing study is to determine whether cognitive and behavioral skills taught using a high fidelity patient simulator are transferable to the clinical setting.

METHODS: After REB approval and informed consent from subjects and patients, senior anesthesia residents and anesthesia fellows were recruited for this prospective, controlled randomized study. Pretest: One week after receiving the training syllabus subjects proceeded to the operating room(OR) to attempt to wean a patient from CPB. Intervention: Subjects were randomized to either a control didactic group, or a simulation based education group. The didactic teaching group received a detailed lecture from an expert in cardiac anesthesia. The simulation based group attended the simulation training closely mimicking weaning from CPB. Posttest: Within two weeks of completing their training subjects were brought to the OR to wean a patient from CPB. Retention: Three weeks later the subjects returned to the OR for a final attempt at weaning a patient from CPB. Two blinded anesthesiologists evaluated each subject during all the test phases using a previously validated assessment scale, Anaesthetists' Non-Technical Skills(ANTS)¹.

RESULTS: The didactic group had 3 subjects and there were 7 subjects in simulation group. The simulation group demonstrated improvement in the overall ANTS score in both their posttest and retention test when compared to their pretest and when compared to the didactic group ($p<0.01$). The didactic group showed no significant improvement in either their posttest or retention test. Improvement was observed in all the categories of ANTS in the posttest of the simulation group($p<0.01$).

DISCUSSION: When compared to traditional didactic seminar based learning, contextualized and experiential learning with high fidelity simulation can lead to improved cognitive and behavioral performance in the clinical setting. The results of this ongoing study suggests that cognitive and behavioral skills taught using a high fidelity patient simulator are transferable to clinical settings, and supports the use of simulators for teaching advanced clinical and crisis management skills.

REFERENCES:1. Br J Anaesth 2003; 90; 580-8