Quality of Care and Outcomes Assessment

SIMULATION TRAINING IMPROVES PROCEDURAL SKILLS IN CARDIAC CATHETERIZATION: A RANDOMIZED, CONTROLLED STUDY

ACC Moderated Poster Contributions
McCormick Place South, Hall A
Monday, March 26, 2012, 9:30 a.m.-10:30 a.m.

Session Title: Decision Making
Abstract Category: 31. Quality of Care and Outcomes Assessment
Presentation Number: 1258-379

Authors: *Akshay Bagai*, Hatim Al Lawati, Warren Ball, Prateek Goyal, Teodor Grantcharov, Neil Fam, St. Michael's Hospital, Toronto, Canada

Background: Virtual reality (VR) simulators are valuable supplemental training resources for surgical skill acquisition, but their utility in improvement of skills relevant to performing cardiac catheterization (CC) has not been evaluated.

Methods: Twenty-six cardiology fellows were included. Baseline CC skills were evaluated using technical and global rating scales during two cases performed on the first day of their cath lab rotation. Participants were then randomized to receive either training on a VR trainer (VIST, Mentice, Gothenburg, Sweden), until a pre-designated level of proficiency (n=12) was reached, or conventional training (n=14). All participants received a didactic lecture and continued with usual apprenticeship training. Subsequently, one week later, each participant performed two further CCs evaluated by the same single observer blinded to group assignment. One participant randomized to the simulator did not complete the one week follow-up CC and was excluded from the analysis. Change in technical and global rating score from baseline to one week in each group was compared using Wilcoxon Rank sum test, and differences between groups in the change in scores was compared using Mann Whitney test.

Results: There was no difference at baseline in technical (p=0.50) or global (p= 0.64) rating scores between the two groups. Compared to baseline, at one week, fellows in the simulator group had significantly higher technical scores (median 24 vs. 18, p=0.04), while those in the no simulator group had no change in technical score (median 19 vs. 17.5, p=0.51). The one week change in technical score was greater in the group randomized to the simulator (median 6 vs. 1, p=0.049). Compared to baseline, at one week, fellows in the simulator group also had higher global rating score (median 24 vs. 17, p=0.049), while those in the no simulator group had no change in global rating score (median 19 vs. 17.5, p=0.43).

Conclusions: Cardiac catheterization procedural skills can be improved with proficiency based virtual reality simulator training. Cardiology training programs should consider incorporating simulators into the cath lab rotation.