The effects of retraining on theoretical knowledge of cardiopulmonary resuscitation: a simple statistical method of evaluation

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PURPOSE OF THE STUDY:

Retraining improves practical abilities in cardiopulmonary resuscitation (CPR). This work aims to evaluate the impact of retraining on theoretical knowledge of CPR. If any effects were identified, the role of notional concepts would be pointed out, beside the importance of practical exercises, and new approaches could be developed to make retraining more effective.

MATERIALS AND METHODS:

During 2016 and early 2017, CPR courses were held according to 2015 guidelines and 226 student nurses (age:19-34, median=21) were enrolled. For 122 nurses, it was a retraining course (RC); the others attended their first course (FC). All participants completed a 7-question pre-test, regarding airways (items 1,3), breathing (4), circulation (5), defibrillation (6,7); chain of survival (2). After lessons, the same test was administered (post-test). Practical work was conducted on Resusci-Anne manikins with training defibrillators. R statistical program was used.

RESULTS:

Median pre-test score was 6 (range: 1-7). Median scores were 4.5 (range: 1-7) and 6 (range: 2-7), respectively in FC and RC group. A significant difference exists between the two groups (Mann-Whitney-Wilcoxon test, $P<0.001$). Analyzing questions singularly, all items behave differently among FC and RC pre-tests, except for item 6. Median post-test scores were 7 in both groups; however a significant difference still exists ($P=.02$), except for item 6. Differences are also found between pre-test and post-test scores, overall and separately in both groups (Wilcoxon signed rank tests, $P<0.001$).

CONCLUSIONS:

CPR courses significantly increase theoretical knowledge, both in FC and RC groups. Participants who attend a retraining get better results at pre-test because they retain information from previous courses. RC group does better also in post-test: a new course fails to fully compensate for the benefits of previous competency. Knowledge of defibrillation should be enhanced. Finally, retraining is useful also regarding notional concepts, which are the basis for effective abilities in CPR.