

CPREzy™:

A New Adjunct To Improve External Chest Compressions By Professionals

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Introduction:

External chest compressions (ECC) are an essential part of cardiopulmonary resuscitation either by laypersons or professionals and are usually performed without any adjuncts. Although different devices have been developed in the past, none was implemented as standard during resuscitation. The CPREzy™-pad is a simple device to help the user to perform ECC, and an improvement of laypersons' performance could recently be demonstrated.

Methods:

81 healthcare professionals (29 physicians in anesthesiology, 25 anesthesia nurses, 27 paramedics; male n=54) were asked to perform 3 minutes of continuous ECC on a manikin with and without the pad. Group 1 (n=40) performed ECC with the pad first, followed by classic ECC. Group 2 (n=41) did the same vice versa. Both groups had no refreshment training in classic ECC before. Before using the pad a training video (1:38 min) had been shown, followed by 1 min to get familiar with the device. Primary endpoints were a rate of ECC between 90 and 110/min and a compression depth between 40 and 50 mm. Secondary endpoints were the rates of incorrect decompression, incorrect hand positioning and the correlation between the candidates' performance and their answers in a questionnaire about rate, depth and correct hand position for ECC.

Results:

Group 1 reached correct compression rate in 82.5% (n=33) and correct depth in 72.5% (n=29) with CPREzy™. Afterwards they conducted classic ECC without the device and deteriorated significantly in respect of the correct rate to 30% (n=12; $p<0.01$), but 62.5% (n=25) met the correct compression depth again. Group 2 performed poorer in classic ECC: 12.2% (n=5) achieved the correct rate and 51.2% (n=21) compressed in a proper depth. With CPREzy™ they improved significantly in the 2nd evaluation: 82.9% (n=34; $p<0.01$) hit the correct rate and 87.8% (n=36; $p<0.01$) the correct depth.

Conclusions:

CPREzy™ as a simple portable and re-usable device is able to improve healthcare professionals' performance of ECC in simulated cardiac arrest. In addition the device is a suitable tool for ECC training.