Home Education and Resuscitation Outcomes Study (HEROS) Program: Community Implementation of Dispatcher-assisted CPR in Seoul, South Korea

BRIEF BACKGROUND

In Korea, approximately 60% of out-of-hospital cardiac arrests are known to occur at home. During these cases, middle-aged housewives and elderly people are most likely to be the initial witnesses and must activate EMS. However, a study[1] suggested that the quality of dispatcher-assisted CPR (DA-CPR) performed by bystanders might be insufficient to affect patient outcomes. Standard BLS training does not usually contain the concept and protocols of DA-CPR, making it difficult for callers to understand the instructions given by dispatchers.

STEPS TAKEN

In 2015, a new DA-CPR training for laypersons — called the Home Education and Resuscitation Outcomes Study (HEROS) Program — was developed by Seoul National University Hospital, the Seoul Metropolitan Government and Laerdal Medical to deliver relevant, quality-controlled community training for home bystanders.

Initially implemented across three counties in Seoul with a collective population of two million, HEROS Phase I is a one-hour training program using 30-minute, video-based CPR training with chest compressions, a short role play and a debriefing session. The CPR instructor in the video is a dispatcher, covering step-by-step what happens during dispatcher-assisted CPR. During the role play, one trainee acts as a dispatcher and the other a layperson. The manikin-to-student ratio is 1:1, and class size varies from approximately 10-42 students.

In HEROS Phase II (2017-present), the collaborating partners jointly developed and piloted the QCPR classroom feedback concept, using instrumented manikins connected to a tablet used by the instructor. The solution allows the instructor to monitor and improve CPR quality during training. Data from the tablet is collected for reporting and research.

CHALLENGES

The recruitment of the HEROS program's target population, which includes women (35-65 years) and elders (both genders over 65 years), poses a continuing challenge. Currently, only 8% of the total learners are in these target groups.

RESULTS

The outcome of the initial HEROS Phase I training program was reported in a randomized simulation study.[2] In the study, participants trained with the HEROS training showed improvement in quality of CPR (shorter no-flow time and fewer interruptions during bystander CPR simulation assisted by a dispatcher) immediately, and six months after the training, compared with those trained using the standard BLS program. Currently, eight districts in Seoul are participating in the HEROS program. To date, more than 100,000 people have been trained.

For HEROS Phase II, the effect of a QCPR classroom feedback device in community trainings has been studied in a cluster-randomized trial.[3] Students in the QCPR feedback group significantly increased overall CPR score performance compared with those without the device. Particularly, compression depth and release showed higher improvement among students in the QCPR feedback group. Currently, seven districts in Seoul are using a QCPR Classroom feedback device during their community CPR trainings. Performance data from 67,000+ individual students has been collected.

OUTLOOK

Now in the creation stage, HEROS Phase III will incorporate the latest innovations to accelerate community CPR and survival from cardiac arrest. Further research using QCPR Classroom is also being conducted by Kokushikan University in Tokyo and by Shanghai Jiaotong University.

CONTACT

Dr. Sang Do Shin: shinsangdo@gmail.com

Figure 1: HEROS training (video, chest compressions, and role play)

1. Dorph E, Wik L, Steen PA; Dispatcher-assisted cardiopulmonary resuscitation. An evaluation of efficacy amongst elderly. Resuscitation 2003;56(3):265-73.
2. Kim TH, Lee YJ, Lee EJ, et al.; Comparison of cardiopulmonary resuscitation quality between standard versus telephone-basic life support training program in middle-aged and elderly housewives: A randomized simulation study. Simul Health 2018;13(1):27-32.
3. Kong SY, Song KJ, Shin SD, Ro YS, Myklebust H, Birkenes TS, Kim TH, Park KJ; Effect of real-time feedback during cardiopulmonary resuscitation training on quality of performances: A prospective cluster-randomized trial. Hong Kong Journal of Emergency Medicine 2019.

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