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Letter to the Editor

Why should we maintain "push hard" as a key component of high-quality cardiopulmonary resuscitation?

Sir,

I recently read the article entitled, "Can rescuers accurately deliver subtle changes to chest compression depth if recommended by future guidelines?", by Deakin et al. with great interest [1]. I agree that the target chest compression depth (CCD) should not be below 5.0–6.0 cm, as currently recommended. However, there are another consideration for the reasons of that. I would like to discuss this matter with the authors and readers of the journal.

The authors limited the mechanical model with a 45-kg compression spring. However, the compression forces and the absolute CCD in real patients differ [2], indicating that the stiffness of the patient's thorax varies among patients. If the stiffness of the patient's thorax is high, the rescuers will have a hard time obtaining adequate CCD even though they are qualified rescuers. Although the result of the statistical analysis concluded that adequate CCD is achieved by applying a 50-kg force to the sternum, there is no guarantee that patients will receive high-quality cardiopulmonary resuscitation (CPR) when this amount of force is applied into their sternum [2]. Most of the people who read the basic life support guidelines are not specialists on the area of resuscitation, but the public. They do not know the significance of pushing the patient's sternum by at least 5 cm; they push the patient's chest only because it was stated in the guidelines [3]. The results of the study by Stiell et al. were surprising [4]. Results showed that the optimal CCD is 4.56 cm, which is lower than the recommended CCD (at least 5 cm) [4]. This leads to the question about whether 4.56 cm is the optimal CCD for all patients. The answer is no. The patient's build and weight were not standardized in that study [4]. The 4.56-cm depth was proposed based on the results of the statistical analyses. Pushing the patients' chest to a depth of 4.56 cm does not necessarily increase the survival rate of all patients. Therefore, it is important to follow the guidelines, that is, to perform firm chest compressions with a depth of at least 5 cm. Important results are not whether the rescuers could discriminate 0.5 cm differences in the CCD but they could not obtain adequate CCD even they were taught to push 5.0–6.0 cm [1].

Some concerns were raised regarding the risk of injury during chest compressions [5]. However, we should save the patient's life despite the risk of skeletal chest injury. Although chest compressions using a feedback device is a possible solution to this problem, further studies are needed to prove that the use of this device would simultaneously increase the survival rate and minimize the injury rate.

Although some issues were reported, the study conducted by Deakin et al. showed interesting results. I believe that those results can provide a better understanding of the "push hard" policy and help add to future CPR guidelines.

Conflict of interest statement

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