



# For better resuscitation in head up position cardiopulmonary resuscitation: using echocardiography

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Dear Editor,

With great interest, we have read the article by Park et al.<sup>1</sup> published in *Clinical and Experimental Emergency Medicine*. This article shows that a 30° angle head-up positioned cardiopulmonary resuscitation (CPR) resulted in a lower 24-hour survival rate and return of spontaneous circulation rate compared with conventional supine positioned CPR. We completely agree that this study was interesting and meaningful for CPR situations where the patient cannot be laid down, such as an elevator. However, we would like to suggest a simple proposal for future experiments.

It is not clear which point of the chest was specifically compressed by the mechanical CPR device in this paper. Pressing on the accurate position of the heart is essential to achieve good quality CPR. The optimal chest compression point, even in the supine position, varies from swine to swine.<sup>2</sup> Furthermore, because of gravity, the heart sits lower in the chest in the head-up tilt position, compared to the supine position. It is evident that just turning to the left side for an echocardiography can change the position of the heart. Therefore, further investigations that incorporate adjusting chest compression points in the head-up tilt position might be needed.

It is simple and easy to find the position of the heart by using echocardiography. It would be more helpful to use echocardiography before applying the mechanical CPR device. Echocardiography is noninvasive, fast, and easy to perform. In the parasternal long axis view, if the right ventricle is shown at the top center of the screen and the left ventricle is shown beneath the right ventricle, that could be an appropriate chest compression point.<sup>3,4,5</sup> The optimal chest compression point might be different in the supine position from the head-up tilt position. From this point of view, echocardiography could have influenced the result of this experiment and suggest the adjusted heart position in the head-up status.

## CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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