



Letter to the Editor

What is the key contributor in achieving return of spontaneous circulation in the field from out-of-hospital cardiac arrest?



Sir,

I have read the article entitled 'Cardiopulmonary resuscitation by trained responders versus lay persons and outcomes of out-of-hospital cardiac arrest: A community observation study' by Park et al. with great interest [1]. Identifying major contributors in increasing neurologic outcomes of out-of-hospital cardiac arrest (OHCA) is an important task for researchers. This study presents simple, but important, results on the effects of cardiopulmonary resuscitation (CPR) performed by trained bystanders. However, several issues were noted in interpreting the results of the study. Therefore, I would like to discuss these issues with the authors.

Accurate predictors of OHCA survivals are already known: prehospital return of spontaneous circulation (ROSC), bystander witnessed, bystander CPR, emergency medical services witnessed, and shock prior to transport [2]. Among these predictors, prehospital ROSC is the most important factor for survival. The odds ratios from survival to hospital discharge among OHCA patients who achieved prehospital ROSC were reported to be from 20.96 to 99.84 [3].

In the results of Park et al.'s study, prehospital ROSC performed by the trained responders (TR) group was significantly higher than that of the lay persons (LP) group (14.8% vs. 9.7%, respectively, $p = 0.001$). I believe that this difference was a key determinant for the higher good neurologic outcomes in the TR group. Therefore, the authors should have focused in identifying why was the prehospital ROSC of the TR group was high.

Many factors can contribute to the prehospital ROSC, such as arrest time, time to the first shock, CPR time, and underlying health status of the patients, in addition to the variables presented by the authors (age; sex; time, weekend, season, and location of the event; and first recorded rhythm). The authors also described that the time of the first shock was strongly associated with survival, irrespective of the bystander type (TR or LP). However, the differences of the time of the first shock between the two groups were not presented. In addition, the time of the first shock was not used for adjusting the potential confounders in multivariate logistic regression analysis. Although the authors described the reason behind the exclusion of the time of the first shock in the analysis, it was still necessary to confirm the differences of this key factor. Other

time factors (e.g. arrest time and CPR time) and health status of the patients were also not presented and included in the analysis. If the differences of these factors are identified between the two groups, factors that contribute to the prehospital ROSC and know the intrinsic difference between the two groups can be determined.

Despite these weakness, understanding the need for the preparedness of trained bystanders is essential to improve the outcomes of OHCA in this study. Therefore, the key contributors to the prehospital ROSC should be identified. Although prehospital ROSC is not an easily predictable factor, Park et al.'s study gives us the necessary information to validate our understanding of the key contributors to the prehospital ROSC.

Conflict of interest

The author has no conflicts of interest relevant to this article to disclose.

Financial disclosure statement

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