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Letter to the Editor

Prognostic value of signs of life in refractory out-of-hospital cardiac arrest

To the Editor,

We read the recent article entitled “Prognostic value of signs of life throughout cardiopulmonary resuscitation for refractory out-of-hospital cardiac arrest” authored by Debaty et al.¹ We applaud the authors' work for prognostication of refractory out-of-hospital cardiac arrest (OHCA), as it certainly adds valuable information to the current literature. After reviewing the article, we have some comments to share with you.

In the methods section, the authors mentioned basic and advanced life support (ALS) was provided according to the international guidelines and cited European Resuscitation Council (ERC) Guidelines for Resuscitation 2015, which is changed from 2010 guidelines.² As the recruitment period spanned from 2009 to 2017 across all three primary cohort studies of refractory OHCA individuals treated with Extracorporeal CPR (ECPR),^{3–5} we are not sure if consistent ALS guidelines were used across all three studies. Additionally, we are curious to know why medication ordering was performed at the discretion of the attending physician if standard ALS guideline was used.

In the results section, they mentioned 20,630 OHCA during the study period. Out of those, 434 were treated with ECPR following refractory OHCA and 63 (15%) of them were alive at 30 days with favorable neurological outcomes. We are eager to know what percent of the total OHCA patients developed a refractory OHCA, how many of them showed signs of life through cardiopulmonary resuscitation (CPR), and what was the 30-day survival with favorable neurological outcomes in those who did not receive ECPR? Moreover, was the decision to implement ECPR was influenced by the presence or absence of signs of life during conventional CPR? This information can be immensely valuable in comparing the 30-day survival rate with favorable neurological outcomes between patients receiving ECPR and patients not receiving ECPR.

In Table 1, individual incidence of signs of life was given as gasping 136/431, pupillary light reaction 155/323, and increased level of consciousness 49/376, whereas any sign of life had an incidence of 230/380. If we are not wrong, it is a common understanding that the denominator of the incidence of having any sign of life (given as 380) will be equal to the highest denominator of those individual signs of life (here 431 for gasping). We would like to know if it was a miscalculation, or there are missing data that was not reported. Furthermore, we are

interested to know why the authors choose not to address the missing data by intention-to-treat analysis.

Summarily, out of 20,630 total cardiac arrests during the entire study period, only 434 (2%) patients were treated with ECPR. Out of those 434 patients, 63 (15%) patients achieved 30-day survival with positive neurological outcomes. Essentially, out of 20,630 total cardiac arrests, 63 patients achieved survival after ECPR. This is just 0.3% of the total OHCA population who survived after ECPR. As the overall mortality benefit of ECPR remains very low, it will be worthwhile to address the practicability and cost-effectiveness of implementing ECPR for all refractory cardiac arrest patients, especially by using a mobile dedicated team in pre-hospital settings.

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Compliance with ethics guidelines

This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

Conflict of interest

The authors do not have a financial interest or relationship to disclose regarding this letter to the editor.

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All named authors meet the International Committee of Medical Journal Editors (ICMJE) criteria for authorship for this article, take responsibility for the integrity of the work as a whole, and have given their approval for this version to be published.

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