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Letter to the Editor

Methodological issues in the study of inter-hospital transfer in low-volume and high-volume emergency departments and survival outcomes after out-of-hospital cardiac arrest



To the Editor,

We read with great interest the article by Park and colleagues,¹ who found that inter-hospital transfer (IHT) group had better neurological recovery than the non-IHT group in low-volume emergency departments (LVEDs) visitors, while for the patients in high-volume emergency departments (HVEDs), the IHT group did not show better neurological recovery than the non-IHT group. Though this study sounds scientific, some critical methodological issues should be discussed.

First, Park et al. aimed to investigate the association between IHT and outcomes of out-of-hospital cardiac arrest (OHCA) and many potential confounders had been matched in the multivariable logistic model, however some important confounders of post-resuscitation management, including percutaneous coronary intervention (PCI), extracorporeal membrane oxygenation and targeted temperature management, were unbalanced between the IHT group and non-IHT group, which might affect the final results. Interestingly in 2016, the same research group published a study which demonstrated that therapeutic hypothermia (TH) was more beneficial for good neurological recovery in the patients who arrived via IHT than those who arrived via IHT and IHT modified the effects of TH on neurological recovery for survivors of OHCA.² Kim et al. also showed that PCI was associated with good neurological recovery and survival-to-discharge for all OHCA patients.³ Hence, we are concerned that these confounders of post-resuscitation management might bring biases to the final result.

Second, Park and colleagues selected neurologic recovery as the primary outcome, claiming that neurologic recovery was evaluated by cerebral performance category score of 1 or 2, but they did not clarify what the two numbers each stands for which kind of impaired brain function or the performances of the OHCA patients, which could make the readers confused. What's more, the widespread used quantitative scores for neurology function assessment like the National Institutes of Health Stroke Scale (NIHSS)⁴ Score and Glasgow Coma Score⁵ would be more precise and convincing and should be considered.

Third, the study by Park et al. was a cross-sectional design, thus the finding of the relationship between IHT and outcomes of OHCA patients should be interpreted with caution as causative relationship should not be inferred from cross-sectional design studies, valid and robust longitudinal studies are needed in the future.

Competing interests

None.

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