

# The Beneficial Effect of Therapeutic Hypothermia to Improve the Survival of Patients with Out-of-Hospital Cardiac Arrest

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Dear Editors:

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It is an interesting issue that if the administration of routine antiepileptic drug (AED) may provide beneficial effects to patients suffering from cardiac arrest. Previous studies indicated that the incidence of seizures after cardiac arrest is about 8%-23% with a poor neurological outcome or death.<sup>2,3</sup> The impact of AEDs after cardiac arrest may depend on the presence of continuous cortical background activity, since the epileptiform EEG activity superimposed on a suppressed background may reflect diffuse cortical damage and may not be amenable to AED treatment.<sup>4</sup> In our study, all patients received muscle relaxant medication and benzodiazepines immediately after receiving therapeutic hypothermia while AEDs were only used for seizure attack. Overall, the combination of AEDs and hypothermic-targeted temperature management maybe a promising strategy to improve cardiac arrest outcome. Further large-scale studies are required to verify our results.

Before the publication of COMPLETE trial,<sup>5</sup> several trials (i.e., PRAMI,<sup>6</sup> CVLPRIT,<sup>7</sup> DANAMI-3-PRI-MULTI<sup>8</sup>) have also shown that a complete revascularization reduces the risk of the composite mortality, myocardial infarction, and future revascularization in ST elevation

myocardial infarction (STEMI) patients. The majority of patients in our study were diagnosed with acute myocardial infarction. In our clinical practice, revascularization for the non-infarct related arteries were conducted prior to discharge for patients with good neurological results.

However, data regarding complete revascularization and non-ST elevation myocardial infarction (NSTEMI) are solely obtained from observational studies.<sup>9</sup> It is also important to highlight that patients enrolled in clinical trials are often less sick than ones encountered in clinical practice. More than 50% of our patients were NSTEMI and all of them just recovered from cardiac arrest status, indicating that they are the most vulnerable population. Further studies are required to address this issue and obtain more detailed knowledge.

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