Therapeutic Hypothermia After Cardiac Arrest

To the Editor,

After reading the paper presented by Castrejon et al[1] on the results of the use of moderate hypothermia (MH) in patients recovering after cardiac arrest (CA) via ventricular fibrillation or pulseless ventricular tachycardia, we would first like to congratulate the authors for the development of their study, as it is very topical and of great interest with the relevance that sudden CA has in public health.[2]

We would also like to emphasise, in connection with this publication, the need for a protocol that includes MH[3] in all coronary and intensive care units caring for patients after recovery from CA. Also, in addition to the two initial basic measures, MH and coronary reperfusion, which can and should be performed simultaneously if indicated,[4] the protocol should include a series of measures "based on therapeutic goals" that contain aspects of assisted ventilation strategy, glycemic control, haemodynamic assessment and support, monitoring of tissue oxygen utilisation, sedation and neuromuscular blockade, control and prevention of seizures and myoclonus and, finally, the evaluation of neurological outcome and disability in CA survivors, as the method of evaluating patient care.[5]

In this regard, the management committee of the National Cardio-Pulmonary Resuscitation Plan of the Spanish Society of Critical Care Medicine and Coronary Units (SEMICYUC) has prepared a consensus document on post- cardiac arrest care,[6] which refers to these aspects that we consider of great interest to all healthcare professionals involved with these patients.

The actions linking the victims of a SCA with their survival are called the survival chain. These actions include early recognition of the emergency, activation of emergency services, early CPR, early defibrillation and advanced life support, together with after care if the victim is recovering from a cardiac arrest. The final link focuses on the conservation of vital functions, especially the heart and brain. These measures are essential for restoring an adequate quality of life, as the appropriateness of treatment during the post-recovery phase of spontaneous affects patient outcome.[7]

There are substantial differences in how unconscious survivors of CA are treated in the first few hours and days after restoration of spontaneous circulation. These differences may be the reason for the variability of results between hospitals,[8,9] which would confirm the need to strengthen the last link,[10] mainly by trying to achieve the ultimate goal of improving survival in CA patients. Some authors have even proposed adding a fifth link which includes post-CA care as a differentiating component.[11]

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Response

To the Editor,

We appreciate that, in commenting on our study,[1] Lopez-Mesa et al have provided some very valuable information on the multidisciplinary approach to cardiac arrest and its consequences.

The post-cardiac arrest syndrome therapy[2] should result in specific protocols for each critical care unit, as these tools are effective in improving the prognosis of these patients and provide a more standard and regulated treatment. Furthermore, they would promote a more widespread use of hypothermia treatment (HT) in Spain.

The initial collaboration of the cardiologist is crucial, given the high proportion of cases of cardiogenic shock, severe ventricular dysfunction and arrhythmias.[1-3] The causes of cardiac arrest are mainly cardiac and require a specific approach to the underlying condition.

The proportion of patients whose first rhythm is asystole or who require electromechanical dissociation exceeds 50%; survival is low (0.15%-12.6%) and the causes are mostly cardiac.[4,5] The prognosis in this group relies almost exclusively on the out-patient survival chain,[6,7] but HT has a place here: it should start after resuscitation and not be systematically stopped until reaching hospital.[2] In addition, the work of Moon et al[8] shows better survival and prognosis in groups treated with HT. Others, however, have failed to demonstrate any benefit due to the very low total survival.[3]

From our point of view, every comatose patient after cardiac arrest with no formal contraindication can benefit from HT.

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