Letter to the Editor

Is near-time prevention for sudden cardiac arrest feasible? The e-MUST score

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As underlined by Dr. Montero *et al.*, in-hospital mortality of ST-segment elevation myocardial infarction (STEMI) has decreased drastically, and out-of-hospital death by sudden cardiac arrest (SCA) has become the main cause of death from STEMI (1). SCA is also a major issue of public health with more than 350,000 deaths per year in the United States, accounting for almost half of cardiovascular mortality (2,3). Two approaches have been traditionally used to reduce the burden of SCA: prevention and resuscitation. However, despite major investments in these two approaches, SCA mortality remains high, highlighting the need for new strategies to effectively reduce SCA burden (4). A promising approach would be near-term prevention, which is based on the anticipation of SCA in order to insure that resuscitation will be started soon enough after SCA occurrence, or that prophylactic therapy will be administered for avoiding actual SCA in this well-selected population.

In order to explore this feasibility of this promising path, we used data from the e-MUST (Evaluation en Médecine d'Urgence des Stratégies Thérapeutiques des infarctus du myocarde) registry that includes all out-of-hospital STEMI managed by emergency medical services (EMS) in the greater Paris area since 2003. After splitting our main population into a derivation sample (two third of the patients) and a validation sample (the remaining third), we identified the factors associated with an increased risk of SCA and use them to build a SCA prediction score of five variables systematically obtained on the phone by EMS when called for a chest pain: younger age, absence of obesity, absence of diabetes, shortness of breath, and a short delay between pain onset and call to EMS. This score showed a good performance in predicting SCA occurrence, whether in our internal validation sample or in an additional external validation population (5).

Obviously, the performance of the e-MUST score could have been improved by adding variables specific to SCA such as family history of SCA and alcohol consumption (6,7). These variables were not available in the questionnaire since they are not part of the routine information gathered by EMS on the phone when called for chest pain. However, despite this limitation, the possibility of creating a risk score for predicting SCA at the acute phase of STEMI illustrates the feasibility of SCA anticipation and near-term prevention. Even though the impacts of this approach and its applicability to other causes of SCA have to be demonstrated, a promising path can be foreseen for improving SCA management and outcomes.

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Early Phase of Myocardial Infarction".

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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