

## Letters

### TO THE EDITOR

## Should Early Coronary Angiography Be Performed in All Resuscitated Sudden Cardiac Arrests?



We read with great interest the article by Kern et al. (1) regarding the importance of early reperfusion on top of hypothermia for limiting infarct size among survivors of sudden cardiac arrest (SCA).

The authors compared the extent of myocardial damage in 32 swine in which SCA was provoked shortly after coronary artery occlusion, according to whether they received hypothermia alone, reperfusion alone, hypothermia and reperfusion, or none. The best results were obtained in the group who received both therapies. The authors (1) concluded that treatment of resuscitated SCA should systematically include early coronary angiography for potential emergent reperfusion.

However, this study only assessed the benefit of early coronary angiography in a particular SCA setting where an acute coronary occlusion was present. Generalization to all SCA should be done with caution. Even though coronary artery occlusion is frequent in SCA with ST-segment elevation, the rate of coronary occlusion is much lower among patients without ST-segment elevation (2-4). This study does therefore emphasize the current guidelines for early coronary angiography when ST-segment elevation is present, but it does not allow any conclusion regarding the management of SCA presenting without ST-segment elevation.

Further studies assessing the efficacy of early coronary angiography in the absence of ST-segment elevation are still needed. Meanwhile, patients' selection in the absence of ST-segment elevation needs to be improved, in order to identify resuscitated SCA patients that are most likely to have an acutely occluded coronary artery and who would benefit most from early coronary angiography.

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### REPLY: Should Early Coronary Angiography Be Performed in All Resuscitated Sudden Cardiac Arrests?



We appreciate the comments (1) from members of the Sudden Death Expertise Center in Paris, France. We certainly concur that patients without ST-segment elevation have a much lower rate of acute coronary occlusion than those manifesting ST-segment elevation. We have found in a nonrandomized, post-arrest registry that 3 of every 4 post-resuscitated patients with ST-segment elevation have an acutely occluded culprit vessel identified at early catheterization on hospital arrival, whereas only 1 in 4 patients following cardiac arrest without ST-segment elevation have such. However, as some of these authors noted in 1999 (2), the electrocardiogram is a relatively poor identifier of those patients who have such an acutely occluded coronary and those who do not.

We are also interested in a more precise way to prospectively identify patients following cardiac

arrest needing acute reperfusion post-resuscitation, but have been disappointed with the accuracy of suggested schemes to date (3). The stimulation for this pre-clinical project was our repeated experience that because many interventional cardiologists are unsure which resuscitated patients truly need emergent coronary angiography and which do not, a common approach is to ask the emergency department physicians to institute a targeted temperature management program, and then coronary angiography will be considered “later.” Our study shows that such an approach for the patient following cardiac arrest with an acutely occluded culprit coronary is not optimal, and results in the same myocardial infarct size as those receiving neither hypothermia nor early reperfusion. We continue to favor a liberal approach to offering coronary angiography to nearly all post-resuscitated victims of out-of-hospital cardiac arrest regardless of their electrocardiogram ST-segment findings (4).

Finally, we agree randomized, clinical data on the efficacy of early coronary angiography in the absence of ST-segment elevation are still needed (5), and we are presently engaged in such a study (NCT02387398).

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