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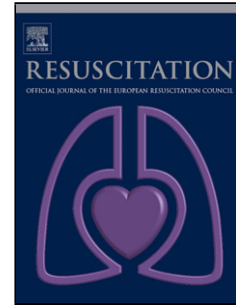
Author: Tom Quinn

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Where do I take my patient post ROSC in the absence of ST elevation on the ECG?

Professor Tom Quinn FRCN FESC FAHA FACC

Centre for Health and Social Care Research, Faculty of Health, Social Care and Education, Kingston University and St George's, University of London, London, UK

Email t.quinn@sgul.kingston.ac.uk

Twitter: proftomquinn

Two decades ago Spaulding and colleagues from Paris reported angiographic findings from a small observational series of 84 initial survivors of cardiac arrest who were taken directly to the cardiac catheter laboratory.[1] A significant proportion (48%) had 'clinically significant' coronary disease at angiography, which is perhaps unsurprising given longstanding assumptions that the aetiology of the majority of OHCAS is coronary disease. Since that time, efforts have been made to identify treatments used routinely in management of the acute coronary patient *without* OHCA, which could be administered to the advantage of those who have sustained cardiac arrest. The TROICA investigators, for example, hypothesised that prompt administration of the fibrinolytic agent tenecteplase by prehospital clinicians might improve survival from refractory OHCA where massive pulmonary embolism was excluded as the provoking insult. [2] Unfortunately, this trial was terminated early because of funding difficulties, and the research question remains unanswered.

Where an OHCA patient has regained spontaneous circulation and presents with ST elevation (STEMI) on the 12 lead electrocardiogram (ECG), decisions in contemporary practice appear straightforward: guidelines recommend that such patients should be taken immediately to the catheter laboratory even if comatose.[3,4] This of course depends on the availability of a health system with capability for rapid decision making and transportation to a hospital with facilities and personnel to effect rapid angiography and intervention if required. In many Western countries regional 'heart attack centres' act as the hub of such systems. The American Heart Association has also recommended regionalisation of care for OHCA in 'cardiac arrest centres'. [5] This seems sensible, certainly for those with STEMI (and accepting that addressing the coronary anatomy is but one component of high quality post-resuscitation care).

But what to do for those who present without ST elevation? While there is a growing volume of observational data, mostly suggesting an association with improved outcome and transport to a cardiac arrest centre, there are to date no high quality randomised trials. Millin et al undertook a systematic review of 11 observational studies (all but one of which were retrospective in design) and concluded that patients with STEMI post-ROSC were thirteen times more likely to be taken directly to the catheter laboratory than those without. In those without ST elevation who did undergo emergency angiography, a third had an acute culprit lesion warranting angioplasty (compared to almost 80% for those with STEMI). [6]

Conducting trials in the prehospital care setting is challenging, and conducting a trial spanning both prehospital and (largely) tertiary cardiological communities even more so, particularly when exposure of individual paramedics to the condition of interest is infrequent. [7] It is therefore crucial, to avoid waste of resources and unnecessary burden on trial participants, that any proposed trial is designed and conducted based on the lessons learnt from conducting a pilot study of the feasibility of such a trial succeeding (i.e. recruiting sufficient patients to answer the research question with a high degree of certainty; protocol compliance to preserve integrity and trust in study findings, etc). [8] In this issue, Patterson and colleagues from London, UK, report a pilot randomised trial of expedited transfer to the catheter laboratory of initial survivors of witnessed OHCA where the presenting rhythm was ventricular fibrillation.[9] The purpose of this study was to assess the feasibility of conducting a larger trial, powered for outcomes that will be important to patients; thus, it is not possible to draw any conclusions from the clinical outcomes presented in the report. Of 118 patients screened by emergency medical service (EMS) personnel, 63 met study eligibility criteria and 40 (63%) of these were randomised. Follow up for the primary and secondary outcomes was acceptable at 83%, suggesting completion of the full trial is feasible with modification e.g. using national administrative datasets (NHS Digital) to increase follow up rates. The full trial has now been registered [ISRCTN 96585404] and within the next two or three years we will, for the first time, have high level evidence on this important question for patients, clinicians, and those who plan and fund our health systems.

Conflict of interest statement

No conflicts of interest to declare.

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