

account the significant advances made with myocardial perfusion scintigraphy when discussing and giving guidance on the use of this technique in patients with coronary artery disease. Sadly, the present guidelines and audit standards, as published, make no mention of these developments.

Again, I place myself in the position of a patient having suffered a major event such as an acute myocardial infarct. I would like my doctor to tell me how much myocardium has been compromised, how well the remainder of my heart performs at rest and when submitted to exercise (at work or during leisure), what my long-term prognosis is and what possible alternative treatments are available should part of my myocardium require monitoring and further intervention. The medical and scientific literature provides ample evidence for the role of nuclear medicine in the assessment of these questions, to which an intelligent patient will wish to have answers.

As President of the European Association of Nuclear Medicine I am involved in the comparative assessment of medical practice across Europe. It is clear that the practice of modern cardiology in the UK is falling behind that in other countries.

There are specific bodies which could be approached for a rational and unbiased discussion on the value of certain technologies (in this case, of course, I refer to the British Nuclear Cardiology Group, The British Nuclear Medicine Society and, if required, European subcommittees on nuclear cardiology). Why then are these expert groups not consulted by those who are responsible for the management of patients with acute MI but who do not have first-hand data or expertise in the very subjects they appear to exclude from the thought process?

I feel strongly that the guidelines and audit standards as described fail our patients and also fail to discuss what is now widely available even in the United Kingdom.

PETER JOSEF ELL

President, European Association of Nuclear Medicine

Professor de Bono replies:

Sir—I appreciate Dr Ell's constructive comments on our paper. Dr Ell feels, and I know this feeling is shared with many of his colleagues in nuclear medicine, that our paper has not done justice to the contribution nuclear cardiology can make to investigating post infarct patients. To some extent, this is the result of the condensation necessary to distil a brief report from a great deal of clinical and scientific material; the potential role of nuclear cardiology, particularly with respect to risk stratification, it is considered at greater length in the monograph now in preparation which will report the full proceedings of the workshop. On another level, I feel that it is important not

to misunderstand what we were trying to achieve in attempting to establish a basic set of audit standards and clinical guidelines. We were not trying to establish an optimal management strategy, but to recognise and codify minimum standards which should be within the reach of any secondary or tertiary care facility in the United Kingdom. We have explicitly stated that access to nuclear cardiological facilities should be available at secondary centres, and they will certainly be available at tertiary centres. Dr Ell has elegantly explained how such facilities can be used. I believe that it would have been wrong of us however to have attempted to prescribe management for all patients in such detail.

DAVID DE BONO

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Bystander CPR

Sir—The paper by Weston, Hughes and Donnelly (September/October 1994, pages 402–6) contains bad news and good news. The bad news is that adult cardiac mortality in the community would be reduced by less than 1% even with more widespread citizen initiated CPR. The good news is that six lives per 100,000 adult population would be saved. For Cardiff's adult population of 220,000, this means that 13 individuals per year are dying whom might otherwise be saved if bystander CPR had occurred. Weston takes a population-wide perspective, and does his analysis based on 'what if'. 'What if everybody who died from sudden cardiac arrest had had bystander CPR?' He then extrapolates, based on existing data, to estimate the number of lives which are sadly lost because CPR was not initiated. This is a different spin from most other studies of bystander CPR; they compared cases in which bystander CPR occurred with cases in which bystander CPR did not occur. Virtually every study concluded that bystander CPR improves the likelihood of survival [1]. The only study I am aware of in which this was not the case was because the basic life support rescuers arrived too quickly for the benefit of bystander CPR to be detected. In every other instance, bystander CPR dramatically improved on survival from cardiac arrest. The rapid institution of CPR appears to buy time until more advanced procedures, specifically defibrillation, can be instituted.

In the Seattle and King County area where hundreds of thousands of citizens are trained in CPR, a majority of cardiac arrest episodes have bystander CPR before the fire department arrives. Furthermore, the institution of dispatcher assisted telephone CPR programs, primarily in the King County area, has resulted in bystander CPR rates of close to 60% [2]. Seattle has been jokingly referred to as the only city in the world in which if you trip and fall on the sidewalk, someone will pounce on your chest to do CPR. Because of the high percentage of citizens trained in CPR, cardiac

arrests, which occur in public settings, have over 90% likelihood of CPR being instituted by a bystander.

Rapid institution of CPR makes a difference. In the chain of survival, rapid institution of CPR is considered the second crucial link, other links being rapid notification of the EMS system, rapid defibrillation, and rapid advanced care [3]. Citizen CPR is the most realistic way to institute rapid CPR. If there were a fire fighter or ambulance person on every street corner, bystander CPR would not be necessary. It is impossible to measure the effect of citizen CPR separately from institution of CPR by emergency medical technicians. They are all part of a system, and citizen initiated CPR merely allows more rapid institution of CPR than if the victim had to wait for the fire department. Other studies have shown that every minute of delay in instituting CPR lowers the likelihood of survival by several per cent [4].

If we assume that citizen bystanders can institute CPR approximately two minutes before the arrival of the first responding emergency medical technicians, then it is reasonable to conclude that the bystander CPR program in Seattle results in an additional 10%

survival. The overall survival from witnessed episodes of ventricular fibrillation is 30%. It is reasonable to conclude that 1/3 of the survival rate may be attributed to the initiation of CPR by a bystander.

If a community is unwilling or unable to embark on wide scale CPR training, it should at least immediately institute a dispatcher-assisted telephone CPR program. Such a program has been shown to be safe and effective: is there any reason why it should not be provided throughout the entire country?

References

- 1 Cummins RO, Eisenberg MS. Prehospital cardiopulmonary resuscitation: is it effective? *JAMA* 1985;253:2408-12.
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- 3 Cummins RO, Ornato JP, Thies W, *et al*. Improving survival from cardiac arrest: the chain of survival concept. *Circulation* 1991;83:1832-47.

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