LETTERS TO THE EDITOR

- *The British Heart Journal welcomes letters commenting on papers that it has published within the past six months.*
- *All letters must be typed with double spacing and signed by all authors.*
- *No letter should be more than 600 words.*
- *In general, no letter should contain more than six references (also typed with double spacing).*

Guidelines for specialist training in cardiology

SIR,—I strongly endorse the view of your editorial[1] that the publication of guidelines for the training of cardiologists[2] should be welcomed. These guidelines suggest that competence at temporary cardiac pacing should be established during the first 5 years of higher professional training and that a minimum of 25 procedures be performed. This recognoses the fact that temporary cardiac pacing can be technically difficult and that serious complications sometimes arise.

In practice, however, temporary pacing is a procedure that is learned by senior house officers (SHOs) undergoing general professional training. In a recent survey, 81% had learned temporary cardiac pacing at SHO level and teaching was provided primarily by medical registrars and fellow SHOs.[3] A median of two procedures had been performed under supervision before the SHO was left to perform temporary cardiac pacing unsupervised.

Problems and complications with temporary cardiac pacing are frequent.[4 5] This partly reflects the inexperience of junior medical staff who largely provide this service.[6] The primary aim in providing guidelines for specialist training in cardiology must be to provide a better cardiological service, through raising the standards of individual trainees. The problems with temporary cardiac pacing will not be addressed by this approach.

Training in temporary cardiac pacing must form part of general professional training and the British Cardiac Society should press the Royal College of Physicians to establish guidelines. The "see one, do one, teach one" approach to invasive procedures is no longer acceptable. Formal training could be provided within tutorials, by using training videos or mannequins, and a minimum number of procedures performed under supervision should be specified. Without this approach, the complications of temporary transvenous cardiac pacing will remain unacceptably high.

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1 Boyle RM, Hall RJC. Training in cardiology: the future. *Br Heart J* 1995;**73**:302–3.
2 Hall RJC, Boyle RM, Webb-Peploe M, Chamberlain DA, Parker DJ. Guidelines for specialist training in cardiology. *Br Heart J* 1995;**73**:Suppl 1.
3 Murphy JJ, Frain JPJ, Stephenson CJ. Training and supervision of temporary transvenous pacemaker insertion. *Br J Clin Pract* 1995; **49**:126–8.
4 Winner S, Boon N. Clinical problems with temporary pacemakers prior to permanent pacing. *J Roy Coll Phys Lond* 1989;**23**:161–3.
5 Andrews R, Skehan JD. Temporary pacing: continuing failures in general medical management. *Br Heart J* 1992;**68**:91.
6 Murphy JJ. Audit of the current practice and complications of temporary cardiac pacing. *Br Heart J* 1995;**73**(suppl 3):19.

This letter was shown to the authors, one of whom replies as follows:

SIR,—The comments in Dr Murphy's letter are well made and have been discussed at the recent meeting of the Specialist Advisory Committee in Cardiology (SAC). Dr Murphy will be aware that the SAC has responsibilities for higher medical training only and this was the focus of the guidelines published recently. The responsibility for general professional training lies with the Royal College of Physicians. The SAC in Cardiology fully supports the notion that experience and training in temporary pacing should be an integral part of general professional training and as such should be included in the curriculum for senior house officers preparing for the MRCP diploma.

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Training in cardiology: the future

SIR,—Dr Boyle and his colleagues on the Specialist Advisory Committee in Cardiovascular Medicine of the Royal College of Physicians are to be thanked for their efforts at initiating guidelines for specialist training in cardiology. I did note with interest that in basic training the trainees are told that they must have basic knowledge of the physics of ultrasound and radionuclide imaging, yet no similar requirement is made for the physics and technical aspects of angiocardiography. Perhaps the need was too obvious to state? Nevertheless I find that many cardiology trainees have a poor appreciation of *x* ray technology, yet are training in the discipline that arguably delivers a greater radiation dose than many other types of imaging. The guidelines refer to the need for individuals to have a certificate of attendance at a course of radiation protection, but it must be pointed out that such a certificate is not adequate for an investigator who is performing angiocardiography and that the legislation on ionising radiation in medicine does require adequate training in equipment techniques. This advice is very nicely summarised in a recent pamphlet from the Department of Health (*Health Service Use of Ionising Radiation* HSG(95)3), which should be read by anyone performing cardiac catheterisation.

I hate to add to the burden of knowledge that a trainee must assimilate but perhaps the time has come to recognise the amount of radiation that is employed by cardiological investigations and to institute some element of formal training in *x* ray hardware for the cardiological trainee. I am sure there are many of us who would be only too pleased to participate in this effort.

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This letter was shown to the authors, one of whom replies as follows:

SIR,—I read with interest the suggestion from Dr Partridge that there should have been a greater emphasis on the physics and technical aspects of angiocardiography in the guidelines for training in cardiology. It had been assumed that the physics required would be addressed during courses on radiation protection. It is accepted that cardiologists in training should understand the technical aspects of any equipment under their control, particularly equipment that is expensive and potentially hazardous. A contribution on this topic would be welcomed when the guidelines are revised.

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Warm blood cardioplegia

SIR,—We read with interest the commentary by Youhana on warm blood cardioplegia[1] and would like to clarify some of the issues that were raised.

Youhana implies that continuous normothermic blood cardioplegia (CNBC) has unanimously been shown to be superior to standard hypothermic techniques. Though Lichtenstein *et al* showed that mortality was reduced when CNBC was used in patients with long cross clamp times[2] and after recent myocardial infarction,[3] others found no difference in mortality between warm or cold cardioplegic techniques in patients undergoing urgent or emergency revascularisation.[4 5] Furthermore, many of these studies are flawed by the use of retrospective controls to represent the hypothermic groups. The largest randomised study to date compared warm and cold cardioplegic techniques in 1732 patients and showed no significant difference in mortality or the incidence of non-fatal Q wave infarction between the groups.[6] Therefore, we suggest that currently there is no convincing evidence that overall clinical outcome is improved by the use of CNBC.

The commentary fails to address the important issue of adequate delivery of cardioplegia when warm techniques are used for myocardial protection. Evidence from experimental models[7 8] suggests that efficient delivery of cardiplegia may be far more important than the temperature of the solution used. In pigs anterograde warm blood cardioplegia resulted in reduced regional and global left ventricular function and increased necrosis compared with retrograde after left anterior descending artery occlusion and reperfusion. Though surgeons using cold blood cardioplegia can take comfort in the knowledge that they do not compromise myocardial protection by using a technique employing intermittent periods of ischaemia, those who advocate warm blood cardioplegic techniques must beware of inadequate delivery of cardioplegia in the face of coronary vascular disease.