

groups was similar to that in a typical pacing population (124 (42%) had atrioventricular block, 94 (32%) sinoatrial node disease, 36 (12%) atrial fibrillation plus atrioventricular block,¹² (4%) sinoatrial node disease plus atrioventricular block, and 30 (10%) other diagnoses).

Retrospective analysis of the last 50 consecutive implants before the audit showed that 23 (70%) of the 33 patients over 70 had received inappropriate pacing systems according to the British Pacing and Electrophysiology Group's recommendations and that only two (6%) had received an optimal system. Among the 15 patients under 70, 12 (80%) had received inappropriate units (predominantly single electrode ventricular (VVI) systems) while three (20%) had received either optimal or acceptable alternative units. Two of the patients could not be classified according to the British group's criteria and were therefore excluded. We concluded that increased compliance with the British Pacing and Electrophysiology Group's recommendations should be implemented but that the patient's age, lifestyle, and general fitness together with evidence of left ventricular dysfunction should also guide selection.

Audit of the new implants in the next six months showed a similar distribution of age and indications for pacing. Sixty four (68%) of the 94 patients over 70 received inappropriate units (all VVI systems), whereas only 12 (23%) of the 53 patients under 70 received inappropriate systems.

These changes in our pacing practice have increased our expenditure on hardware from £297 430 to £366 000, a rise of 23% a year. The costing figures used are similar to those given by Clarke *et al.* Thus our actual costings are similar to the projected figures put forward by the authors for increased implementation of the British Pacing and Electrophysiology Group's recommendations in the younger population. We agree that selection of a suitable pacing system entails assessing the patient's lifestyle and fitness as well as the indication for pacing. In many elderly patients we believe that VVI pacing is appropriate, beneficial, and cost effective and that more complex systems are unnecessary.

A P BANNING LYNDA A MCGURK
P G AVERY A G FRASER
MAURICE BUCHALTER

Department of Cardiology,
University Hospital of Wales,
Cardiff CF4 4XW

- 1 De Belder MA, Linker NJ, Jones S, Camm AJ, Ward DE. Cost implications of the British Pacing and Electrophysiology Group's recommendations for pacing. *BMJ* 1992;305:861-5. (10 October.)
- 2 Clarke M, Sutton R, Ward D, Camm AJ, Richards A, Ingram A, *et al.* Recommendation for pacemaker prescription for symptomatic bradycardia. Report of a working party of the British Pacing and Electrophysiology Group. *Br Heart J* 1991;66:185-91.

EDITOR,—We regret the paper by M A de Belder and colleagues on the cost implications of the British Pacing and Electrophysiology Group's recommendations for pacing in the United Kingdom,¹ especially as three of the authors were also authors of the pacing and electrophysiology group's prescription paper.² The pacing and electrophysiology group offered guidelines with a view to providing an impetus to improving pacemaker practice in Britain. These were not intended as rules. The principles were taken from published data over more than 10 years. The group felt compelled to make the offering because United Kingdom pacing practice was lagging so far behind many European and North American centres.³ The group was further encouraged in its efforts by requests from a large number of pacemaker centres to make professional recommendations in order to help them cope with some of the financial consequences of progressive change to more appropriate clinical practice.

It is clear from the report by de Belder *et al* that

their practice of pacing at St George's Hospital, London, in 1991 was a substantial departure from the recommendations of the British Pacing and Electrophysiology Group and unexpectedly different from that in other United Kingdom centres with an interest in cardiac arrhythmias and pacing. As a result it is not surprising that the financial consequences of following the guidelines seemed so great. De Belder *et al* used that financial deficit as a justification to reinterpret the clinical studies which were the sound basis for the pacing and electrophysiology group's recommendations. In particular, they raised the issue of clinical policy towards older patients and set an arbitrary age limit of 75 years. Many interventions in cardiology have not been exhaustively tested in elderly people. However, this is exceptionally not the case in cardiac pacing.^{4,5} Their approach is nothing less than agism, a philosophy which is least appropriate in cardiac pacing.

Since the pacing and electrophysiology group's prescription paper there has been a notable increase in the application of more advanced pacing systems as reported both in the British Pacing and Electrophysiology Group/Department of Health database and by manufacturers' sales data. Plainly, the clinical posture presented by de Belder *et al* is out of step with both the practice and aspiration of a growing number of committed centres in the United Kingdom. Budgetary control is essential and will inevitably entail compromise, but compromise must be made in the light of clinical evidence and not used to reject that evidence, an attitude suggested by de Belder *et al.* We concluded that their report could be damaging to the clinical practice of pacing in Britain, a consequence that apparently they have not acknowledged.

RICHARD SUTTON

Department of Cardiology,
Westminster Hospital,
London

JOHN PERRINS

Department of Cardiology,
Leeds General Infirmary,
Leeds

MALCOLM CLARKE

Department of Cardiology,
City General Hospital,
Stoke on Trent

STUART M COBBE

Department of Cardiology,
Royal Infirmary,
Glasgow

RICHARD G CHARLES

Department of Cardiology,
Broad Green Hospital,
Liverpool

- 1 De Belder MA, Linker NJ, Jones S, Camm AJ, Ward DE. Cost implications of the British Pacing and Electrophysiology Group's recommendations for pacing. *BMJ* 1992;305:861-5. (10 October.)
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- 4 Kruse I, Arman K, Conradsson TB, Ryden L. A comparison of the acute and long-term haemodynamic effects of ventricular inhibited and atrial synchronous ventricular inhibited pacing. *Circulation* 1982;65:846-55.
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AUTHORS' REPLY,—We think that your correspondents have misunderstood our paper. Our support of the recommendations of the British Pacing and Electrophysiology Group should not preclude a financial analysis of implementing them. As your correspondents point out, three of us helped draft the original recommendations, which are largely based on widely accepted principles rather than rigorous trial data, of which there are very few. We do not believe that our pacing practice is greatly different from that of other pacing and arrhythmia centres in the United Kingdom. Another leading national centre (Free-

man Hospital, Newcastle) has just published its cost analysis of the pacing and electrophysiology group's recommendations.¹ The demographic data and pattern of pacemaker usage were very similar to ours and the conclusions virtually identical with our own.

As part of our argument for cost containment we suggested that the pacing and electrophysiology group's recommendations should be applied to patients aged 75 or under. We deny your correspondents' accusation of "agism." We selected an arbitrary age limit, but in defence we assert that there are no data supporting the use of "complex" systems on prognostic or therapeutic grounds in people aged over 75. We think that older patients, as others, should be considered on merit—for example, presence of associated diseases, locomotor ability, etc. Interestingly, in the two references claimed by your correspondents to support the use of such systems in this age group^{2,3} only four of the total of only 29 patients were aged 75 or over. It is absurd to suggest that this small and unrepresentative sample constitutes evidence of "exhaustive testing."

Age limits are widely applied to other expensive cardiac interventions—for example, coronary interventions and implantable defibrillators. With regard to coronary artery surgery and angioplasty several recent publications have forced a change of attitude.^{4,5} No doubt when similar data are published in respect of cardiac pacing we will be able to change our approach. It behoves us to have regard for the financial restraints of our health care system. The potential savings made by implementing our proposed policy may help us offer a wide range of other proved treatments which should be part of a leading arrhythmia and pacing centre's therapeutic armamentarium—for example, coronary angioplasty, coronary artery and arrhythmia surgery, transplantation, implantable defibrillators, and radiofrequency ablation of arrhythmias. Furthermore, appropriate prescription of cheaper pacing systems to elderly or less deserving patients will allow the expanded use of more complex systems in other groups.

Two recent editorials discussing health care in elderly people emphasised the need for more research and recommended that future trials should include a higher proportion of elderly patients.^{6,7} We therefore stand by our assertion that more reliable information is needed to guide us in the optimal use of complex pacing systems, especially in the over 75 age group. This will enable us to further refine the basic proposals of the British Pacing and Electrophysiology Group. Passive acceptance of the status quo obstructs progress.

DAVID E WARD

MARK DE BELDER

SUE JONES

N J LINKER

A JOHN CAMM

Regional Cardiothoracic Unit,
St George's Hospital,
London SW17 0QT

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