LETTERS TO
THE EDITOR

Scope
Heart welcomes letters commenting on papers published in the journal in the previous six months. Topics not related to papers published earlier in the journal may be introduced as a letter: letters reporting original data may be sent for peer review.

Presentation
Letters should be:
- not more than 600 words and six references in length
- typed in double spacing (fax copies and paper copy only)
- signed by all authors

They may contain short tables or a small figure. Please send a copy of your letter on disk. Full instructions to authors appear in the July 1998 issue of Heart (page 104).

Ventricular pacemaker upgrade: experience, complications, and recommendations

Sir,—Hildick-Smith and colleagues have reported high complication rates after pacemaker upgrade, with 45% of patients suffering one or more complications. We were initially surprised by this rate and were prompted to review the experience of surgically upgrading pacemakers at our hospital, which implants approximately 500 new pacing systems each year.

Between 1983 and December 1997, 74 patients’ pacemakers were surgically upgraded from a single chamber (either AAI or VVI) to a dual chamber system. Forty five per cent of the upgrades were performed for pacemaker syndrome or worsening cardiac failure, 16% for atrioventricular (AV) block in patients with AAI pacemakers, 7% for carotid sinus hypersensitivity, 5% for miscellaneous reasons, and 27% were coincident with elective generator replacement.

Nine per cent of these patients developed a wound or generator pocket infection requiring antibiotic treatment, 17% suffered a lead displacement or failure, and 15% required their upgrade pacemakers to be explanted (predominantly because of persistent infection or generator erosion). Therefore, 36% of patients suffered one or more complications, which is comparable to the 45% reported by Hildick-Smith et al.1

Our patients needing surgical reintervention were younger (58.5 [21.3] vs 71.8 [12.9] years, p = 0.009) but otherwise had the same personal and operator characteristics, and pacemaker generator sizes as those without complications, albeit with a tendency to a lower body mass index. Infection was the predominant predictor of requiring further surgery (odds ratio 16.3, 95% confidence intervals 1.8 to 145.1). Complication rates for patients whose pacemakers were upgraded coincidentally with generator replacement were not significantly different from the remainder of the patient group.

These findings support the conclusion of Hildick-Smith et al that pacemaker upgrade should not be done in the absence of a firm indication. Atrial or dual chamber pacing should be the primary procedure wherever possible, as subsequent upgrade has a high morbidity. Recent prospective evidence strongly supports atrial based pacing in patients with sick sinus syndrome,1,2 if not in those with AV block. We await the results of further trials in patients with AV block,3 but it is clear that pacemaker upgrade should be avoided wherever possible, and certainly should not be performed opportunistically in the asymptomatic or uncomplaining patient. The onus is to select the correct pacing mode in the first instance.

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5 Lamas GA. Pacemaker mode selection and survival: a plea to apply the principles of evidence based medicine to cardiac pacing practice. Heart 1997;78:218–20.

Subcutaneous implantation of a cardioverter defibrillator under local anaesthesia

Sir,—In a recent issue, Lipscomb et al reported on the implantation of cardioverter defibrillators (ICD) under sedation and local anaesthesia. In July 1997 we also began implantation of ICDs under local anaesthesia, in conjunction with intravenous sedation using non-anaesthetic agents, in response to logistical problems in obtaining general anaesthetics coupled with the development of smaller devices. We have prospectively collected data on 34 consecutive implants—28 men and six women (mean age 61, range 30–76) with mean left ventricular ejection fraction of 32% (range 15–70) of whom 29 had ischaemic heart disease. The presenting arrhythmia was ventricular fibrillation (VF) in seven, sustained ventricular tachycardia (VT) in 26, and non-sustained VT in one patient.

Like those of Lipscomb et al all procedures were performed in the catheter laboratory. Oxygen via nasal prongs was given routinely and monitored by pulse oximetry, two patients with poor left ventricular function were additionally monitored with arterial lines. Subcutaneous 1% lignocaine was administered in the usual fashion. However, our technique differed from that of Lipscomb et al in terms of the anaesthesia and sedation, local insertion, and device testing, seemingly without detriment to the safety and acceptability of the procedure. Diazepam 5–15 mg (mean 9.2) was given at the start of the procedure with additional aliquots during subcuticular pouch formation and defibrillation threshold testing as required (mean 3.8 mg). Before fashioning the subcuticular pouch, intravenous pethidine 25 mg was given in one case, and an additional 25 mg was required in seven cases. Lipscomb et al commented on the importance of performing a subclavian puncture in the subcuticular tissue plane to avoid mechanical lead fracture; we have performed lead insertion in the more conventional fashion with elective cephalic vein cannulation if possible (23 patients) as with all of our previous implantations under general anaesthesia. Finally, we have performed lead insertion in the more conventional fashion with elective cephalic vein cannulation if possible (23 patients) as with all of our previous implantations under general anaesthesia. Finally, we have performed lead insertion in the more conventional fashion with elective cephalic vein cannulation if possible (23 patients) as with all of our previous implantations under general anaesthesia. Finally, we have performed lead insertion in the more conventional fashion with elective cephalic vein cannulation if possible (23 patients) as with all of our previous implantations under general anaesthesia.

Not withstanding these differences in technique, our experience confirms the previous findings of excellent safety and tolerability. No significant complications occurred perioperatively or at follow up. Patients tolerated the procedures well and 18 were discharged home the following day (mean hospital stay 2.2 days, range 1–10). We believe that by implanting the defibrillators under local anaesthesia and intravenous sedation we have considerably improved efficiency of implantation and reduced hospital stay; patients no longer need to wait for general anaesthesia availability but can be scheduled during a routine cardiac laboratory list. We whole heartedly endorse the conclusions of Lipscomb et al that subcuticular ICD placement may be performed safely and tolerably under local anaesthesia and sedation in the cardiac catheter laboratory.

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Heart 1998 80: 420
doi: 10.1136/hrt.80.4.420

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