Letters to the Editor 1127

Pacemaker selection: time for a rethinking of complex pacing systems: reply

We appreciate the interest in our article expressed by Silberbauer and colleagues. We are surprised to read that we ‘advocate VVI systems instead of DDD systems because of non-inferiority with regard to stroke and mortality as shown by MOST, CTOPP, PASE, and UKPACE.’ Indeed, we never mentioned UKPACE trial,1 published in July 2005, until the submission of our article.

UKPACE trial (in which John Camm is one of the top investigators) compared the clinical effects of VVI(R) pacing and DDDR pacing in elderly patients with high-grade AV block. No significant differences were observed between the two pacing modes in the rates of deaths from all causes, atrial fibrillation, heart failure, or a composite of stroke, transient ischaemic attack, or other thromboembolisms.1 This confirms exactly what we wrote about the treatment of patients with AV block.

Regarding the pacemaker syndrome, data from CTOPP trial are totally confirmed by UKPACE trial. The clinical significance of this has been underlined by Toff et al.1 ‘The low crossover rate (3.1%) from single-chamber to dual-chamber pacing in our study was similar to that in the CTOPP trial (2.7%) suggesting that single-chamber pacing is well tolerated.’

Moreover, in CTOPP, the percentage of patients who crossed from DDD to VVI mode at 5 years was 17.1%. If we consider that in this group the annual rate of patients developing atrial fibrillation and consequently crossed to ventricular pacing was 5.3%, the difference in part or entirely is to be ascribed to intolerance of dual chamber stimulation.2 Thus, we greatly appreciate what was written by Toff et al.: ‘Our results, supported by the PASE and CTOPP trials, suggest that the clinical benefits associated with dual-chamber pacing for atrioventricular block have been overestimated.’

This reply gives us the opportunity to introduce an important point that we did not consider in our article: the incidence of perioperative complications in dual-chamber pacing resulted significantly higher in both UKPACE1 and CTOPP2 trials. The consequence of this is a further increase of difference in costs between dual-chamber and single-chamber devices.

Concerning the new DDD pacemakers equipped with algorithms for minimizing the ventricular pacing in patients with sinus node disease (SND), we believe that: (i) in the absence of data from large trials, it is not scientifically correct to extrapolate the benefits observed by Nielsen et al.4 with atrial pacing to these new devices; (ii) the percentage of patients with SND who develop AV block is low even if not insignificant in some reports, as mentioned by Silberbauer et al.; a strategy of routine implantation of such a pacemaker whose cost is higher by at least £2000 to one SSIR is totally unjustified; (iii) these new DDD devices in the presence of advanced AV block work just as the traditional ones; the reasons why they may show superiority over VVI pacing and furnish different results from UKPACE1 and PASE2 trials remain yet to be explained.

Reference

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Gatekeeper for coronary angiography

We would like to compliment Hooland-Carlsen and colleagues on their well-designed study on myocardial perfusion scintigraphy (MPS) as gatekeeper for coronary angiography.1 However, we have some doubts with regard to the use of MPS in a not-low-risk population. In this selection of patients scheduled for coronary angiography, obstructive coronary artery disease (CAD) was present in half of the population. This is more than twice the prevalence found in populations screened for acute chest pain.2 In such not-low-risk populations, it has been advised to use a test with high sensitivity to identify all patients with the most severe forms of disease in order to improve event-free survival and cost-effectiveness at a long term.3 In our opinion, a sensitivity of 81% for obstructive CAD and 94% for three-vessel disease, as was found by Hooland-Carlsen and colleagues, is too low to incorporate MPS as effective gatekeeper in a pre-coronary angiography strategy.

Furthermore, we share their concern that too many coronary angiographies are performed in patients with normal coronary arteries. A diagnostic test with a high-negative predictive value could therefore best serve as a filter for coronary angiography, but the estimated negative predictive value of MPS for obstructive CAD was only 82%. We suggest that other imaging modalities, such as electron beam computed tomography (EBCT), may better serve as an

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We suggest to use a two-staged diagnostic approach for risk stratification prior to coronary angiography, with EBCT as first step and selective use of non-invasive stress tests (MPS, cardiac stress magnetic resonance imaging, or stress echocardiography) in patients with intermediate calcium scores as second step. Patients with low calcium scores do not need coronary angiography, and patients with high calcium scores should undergo coronary angiography without non-invasive stress testing. This approach will result in a low rate of coronary angiographies in patients without obstructive CAD, in combination with a more optimal identification of patients requiring revascularization therapy. Given the costs of EBCT and MPS, a two-staged approach will certainly be more cost-effective.

**Reference**


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**Gatekeeper for coronary angiography: reply**

We thank Geluk and Zijlstra for their kind words as well as their considerations and proposals. The latter hits right into the heart of the issue: should one stick to the ‘anatomic’ paradigm urging us to detect and treat coronary stenoses and calcifications rather than follow the ‘physiological’ approach to examine for and potentially treat the hypoperfusion, often but not always, caused by stenoses?

Following the first paradigm, a sensitivity of 81% for obstructive coronary artery disease (CAD) and may be even one of 95% for three-vessel disease should be considered suboptimal in what Geluk and Zijlstra term a not-low-risk population. In their opinion, this approach will result in a low rate of coronary angiographies in patients without obstructive CAD, in combination with a more optimal identification of patients requiring revascularization therapy. Given the costs of EBCT and MPS, a two-staged approach will certainly be more cost-effective.

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