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ABSTRACTS IN CARDIOLOGY

Does pacing help in vasovagal syncope?

Patients with the so-called "malignant vasovagal syndrome" who have a predominantly cardioinhibitory response to head-up tilting may reasonably be expected to be cured or substantially improved by pacing to abolish bradycardia during attacks. Indeed there is evidence to suggest that a substantial proportion of such patients do well with dual chamber (DDI) pacing.¹

Sra *et al* from Milwaukee cast doubt on the effectiveness of such therapy (see abstract below). In their study of 70 patients with hypotension and syncope during tilt table testing six patients had asystole and 16 had significant bradycardia, defined as a heart rate less than 60 beats/min with a fall of more than 20 beats/min. These patients were re-studied during temporary dual chamber pacing or, in the presence of atrial fibrillation, ventricular pacing.

Despite pacing, 20 of these 22 patients experienced syncope or presyncope during repeat tilt table testing, which was associated with a fall in blood pressure. One patient became dizzy with a fall in blood pressure of only 20 mm Hg. One patient had a negative test with pacing and was therefore treated by permanent dual chamber pacing. Subsequently symptoms recurred in this patient.

By contrast, 18 of 19 patients who were

treated with metoprolol, theophylline, or disopyramide and tested again had negative tilt table tests and were symptom free at long term follow up, as were three patients treated with both pacing and medical therapy.

It is not clear why pacing failed to prevent syncope and presyncope in this group of patients. Certainly the onset of hypotension often preceded the onset of bradycardia by up to 2 minutes (mean 45 seconds), suggesting that bradycardia may be a secondary phenomenon in many patients. However, pacing did result in a lower fall in mean arterial blood pressure (from 98 to 37 mm Hg before and from 97 to 57 mm Hg after pacing) and may therefore lessen symptoms. Moreover, pacing may also reduce the rate of decline in blood pressure thereby preventing a "drop attack" and giving the patient time to react to presyncopal symptoms and reducing the risk of serious injury.

Despite these qualifications the clear message from Sra *et al* is that medical therapy should be regarded as the first-line treatment for vasovagal syncope even in the face of important bradycardia and that pacing has a low chance of success.

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Comparison of cardiac pacing with drug therapy in the treatment of neurocardiogenic (vasovagal) syncope with bradycardia or asystole

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Background—The efficacy of permanent cardiac pacing in patients with neurocardiogenic (or vasovagal) syncope associated with bradycardia or asystole is not clear. We compared the efficacy of cardiac pacing with that of oral drug therapy in the prevention of hypotension and syncope during head-up tilt testing.

Methods—Among 70 patients with a history of syncope in whom hypotension and syncope could be provoked during head-up tilt testing, 22 had bradycardia (a heart rate <60 beats per minute, with a decline in the rate by at least 20 beats per minute) or asystole along with hypotension during testing. There were 9 men and 13 women, with a mean (SD) age of 41 (17) years. Head-up tilt testing was repeated during atrioventricular sequential pacing (in 20 patients with sinus rhythm) or ventricular pacing (in 2 patients with atrial fibrillation). Regardless of the results obtained during artificial pacing, all the patients subsequently had upright-tilt testing repeated during therapy with oral metoprolol, theophylline, or disopyramide.

Results—During the initial tilt test, 6 patients had asystole and 16 had bradycardia along with hypotension. Despite artificial pacing, the mean arterial pressure during head-up tilt testing still fell significantly, from 97 (19) to 57 (19) mm Hg ($p < 0.001$); 5 patients had syncope, and 15 had presyncope. By contrast, 19 patients who later received only medical therapy (metoprolol in 10, theophylline in 3, and disopyramide in 6), 2 patients who received both metoprolol and atrioventricular sequential pacing, and 1 patient who received only atrioventricular sequential pacing had negative head-up tilt tests. After a median follow-up of 16 months, 18 of the 19 patients who were treated with drugs alone (94%) remained free of recurrent syncope or presyncope, whereas the patient treated only with a permanent dual-chamber pacemaker had recurrent syncope.

Conclusions—In patients with neurocardiogenic syncope associated with bradycardia or asystole, drug therapy is often effective in preventing syncope, whereas artificial pacing is not. (*N Engl J Med* 1993;328:1085-90.)