

## EDITORIAL

*A simple new code for multisite cardiac pacing and implantable cardioverter defibrillator*

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**Key words:** Pacemaker code. Multisite cardiac pacing. Implantable cardioverter defibrillator.**Palabras clave:** Código de marcapasos. Marcapasos multisitio. Desfibrilador cardioverter implantable. (Arch Cardiol Mex 2006; 76: 127-129)

**M**ost pacemakers of the 1960's presented no problem for the description of their functions because they were all essentially the same: they paced a single cardiac chamber, had no sensing capability and had no adjustable characteristics. For the first time, in 1974 the Inter-Society Commission for Heart Disease (ICHHD) proposed a three-position "generic" or "conventional" pacemaker code: the first letter corresponded to chamber paced, the second letter to chamber sensed and the third letter to mode of response.<sup>1</sup> In 1981 a revised code was published by the same designers, this code was augmented by two additional positions: programmability at position IV and special antitachyarrhythmia function at position V.<sup>2</sup> One year later, the Pacemaker Study Group includes the letter C of Communicating in the IV position.<sup>3</sup> The pacemaker code used until three years ago was introduced in 1987 by the Mode Code Committee of the North American Society of Pacing and Electrophysiology (NASPE) together with the British Pacing and Electrophysiology Group (BPEG).<sup>4</sup> This code retains all the characteristics of the 1974 ICHD Code and some of those of the later five-position codes.

With the development of the implantable cardioverter defibrillator therapy, in 1993, Berns-

tein et al.<sup>5</sup> published the NASPE/BPEG code, which consisted of four letters, the first for the shock chamber, the second for the antitachycardia pacing chamber, the third for the form of tachycardia detection and the last one for the anti-bradycardia- pacing chamber. This code did not surpass the one described in 1974 and its use was limited among the cardiologists.

By the middle of the 90's, cardiac resynchronization therapy and biatrial pacing for the treatment of dilated cardiomyopathy and paroxysmal atrial fibrillation arise.<sup>6-12</sup> With the aforementioned, it was possible to stimulate three or four cardiac chambers simultaneously, but the 1987 code was not enough to be able to describe its mode of stimulation; therefore, it was necessary to modify this code. Barold<sup>13,14</sup> proposed that the split format may be useful in the development of the new code for multisite pacing, while other authors proposed different modifications to the code.<sup>15,16</sup> In 2002, Bernstein et al<sup>17</sup> published the NASPE/BPEG code for adaptive-rate, and multisite pacing. The first three positions remain essentially the same as those of the 1987 Code. "R" in the fourth position to rate modulation (adaptive-rate pacing) and "0" when it does not have this mode. In the fifth letter, "0", when there is no resynchronization, "A" when there is

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**Table I.** Code for multisite pacing and implantable cardioverter defibrillator.

I Chamber paced	II Chamber sensed	III Response to sensing	IV Rate modulation	V Multisite pacing	VI Antitachycardia function
O = None A = Atrium V = Ventricle D = Dual (A+V)	O = None A = Atrium V = Ventricle D = Dual (A+V)	O = None T = Triggered I = Inhibited D = Dual (T+I)	O = None R = Rate modulation	O = None A = Atrium V = Ventricle D = Dual (A+V)	O = None A = Atrium V = Ventricle D = Dual (A+V)

biatrial pacing, "V" when it is biventricular, and "D" when the four cavities are being paced. These modifications to the code solved the problem of denomination when there is multisite function, but they did not solve the tachycardias treatment function description. The **NASPE/BPEG defibrillator code** of 1993 is obsolete, since, at the present time, the therapies are multiple, there are diverse algorithms of detection for arrhythmias and there are devices with the association of multisite pacing and implantable cardioverter defibrillator. Probably, the solution to this problem, without

changing the simplicity of the NASPE/BPEG code, is to add a sixth letter: a) "0" when there is not this function, b) "A" when it exists in the atrium, c) "V" when, in the ventricle, the different arrhythmias can be treated and d) "D" when the therapies can be applied in both atrial and ventricular chambers (*Table I*). For example, the combination of cardiac resynchronization and implantable cardioverter defibrillator with rate modulation would be denominated DDDRVV. In the same way, the device to treat atrial tachycardias would be denominated DDDROA.

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