

## Debate on programmed electrical stimulation and radiofrequency ablation of accessory pathways in asymptomatic patients

### *Controversia sobre la estimulación eléctrica programada y la ablación con radiofrecuencia en portadores asintomáticos de vías accesorias*

Margarita Dorantes Sánchez<sup>a</sup>✉, MD, and Annerys Méndez Rosabal<sup>b</sup>, MD

<sup>a</sup> Arrhythmia and Cardiac Pacing Department. Institute of Cardiology and Cardiovascular Surgery. Havana, Cuba.

<sup>b</sup> Pacemaker Department. Hermanos Ameijeiras Hospital. Havana, Cuba.

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#### To the Editor:

With regard to the Letter to the Editor entitled “Contradiction of whether or not ablating asymptomatic patients with Wolff-Parkinson-White syndrome”, from the authors Carmona and Chavez<sup>1</sup>, it should be better to say: “Debate on programmed electrical stimulation and radiofrequency ablation of accessory pathways in asymptomatic patients”.

Controversies arise because: “Nothing is more mutable than the truth, and the wind blows ever stronger toward it”. In Electrocardiology, and in any field of knowledge, controversies have always been and will always be; then, the rational debate that allows development is welcome.

Here are some opinions about this much discussed

and important topic that may be subject to misconceptions. Decide on the use of programmed electrical stimulation (PES) and radiofrequency ablation (RFA) in asymptomatic patients with accessory pathways is not a black and white issue. This is a debate among arrhythmology experts, where each group can have their own opinions, and choose which way to side based on their experiences and arguments, not based on a single case, which may be anecdotal. The experience in the Arrhythmia and Cardiac Pacing Department of the Institute of Cardiology and Cardiovascular Surgery dates from 1985. The pros and cons must be weighted; then it would be good to have basic references, such as the works of Wellens<sup>2</sup> and other very recent ones<sup>3-7</sup>; because the authors mentioned other references that have nothing to do directly with what is being discussed.

In 2005, Pappone<sup>8</sup> published on this matter, and Wellens<sup>2</sup> answered, because their views were opposite. Why the controversy? Why does it continue? Among other things because of the ignorance that still

✉ M Dorantes Sánchez  
Instituto de Cardiología y Cirugía Cardiovascular  
Calle 17 N° 702. El Vedado, Plaza. CP 10400.  
La Habana, Cuba.  
E-mail address: [dorantes@infomed.sld.cu](mailto:dorantes@infomed.sld.cu)

exists on the natural history of the disease. The PES is important again in prognostic stratification of accessory pathways, on a different level than a few years ago, even though the results may vary from one study to another.

From 1990 to 2004, Pappone<sup>8</sup> studied asymptomatic patients, who were previously considered benign cases, and mentioned the possibility of silent tachyarrhythmias, even among the dangerous ones and as a first manifestation. He mentioned the use of PES to stratify risk by: inducibility of the arrhythmia, existence of several accessory pathways, refractory period (this aspect considered to be less important), and the inducement of a fast atrioventricular reciprocating tachycardia. He included 477 untreated asymptomatic subjects, conducted a prophylactic RFA in the high risk group, and considered unjustified its use in the low risk group, with more complications than benefits. Although once catheters are placed it is a temptation not to ablate.

A short antegrade effective refractory period of the accessory pathway, the inducibility of events and a younger age of the subject have been mentioned as independent predictors of dangerous events. Children and adults differ in: pathophysiology, mechanisms, multiple accessory pathways, predictors, and course of action.

There are arguments for and against ablation in asymptomatic subjects.

In favor:

- Silent tachycardia in apparently asymptomatic subjects (how long will they be asymptomatic?)
- PES to stratify risk
- Prophylactic ablation in high risk subjects (inducibility of rapid orthodromic tachycardia, multiple pathways, short antegrade effective refractory period).

Against:

- Serious arrhythmias in asymptomatic subjects are less frequent than in the series of Pappone
- ECG screening is costly (to find 165 children, 200 000 subjects should be studied)
- Risk identification is difficult
- Patient's acceptance of PES in asymptomatic subjects will not be achieved in many cases.

It must be considered whether the risk of the procedure is greater than the natural history of the

asymptomatic case. It is true that complications are rare, but they exist: venous thrombosis, fistula, pulmonary embolism, infection, conduction disorders that would require a pacemaker, sinoatrial dysfunction, cardiac tamponade, chordal rupture, proarrhythmic effect, relapse, failed procedures, stroke, and even death.

Wellens<sup>2</sup> proposed risk stratification with non-invasive studies (stress and pharmacological testing, Holter, specification of the refractory period and intermittency) and, in some cases, proceed to invasive studies. Still, inducibility may not always be present and the pathway may change its functionality over time.

In Milan (2009)<sup>9</sup>, 293 asymptomatic cases with ventricular preexcitation were studied, and after 10 years of follow-up, 31 cases with arrhythmias were found, including 17 malignant arrhythmias. It is true that sudden cardiac death may be the first clinical manifestation, but it is generally considered that there is little risk of serious events. It would be needed to identify the high risk in this group to resolve the conflict of prophylactic RFA.

In that year, 184 asymptomatic children, aged 8 to 12 years, with accessory pathways, were studied, showing a less benign evolution than in adults.

What to do then with the asymptomatic patients with accessory pathways? After analyzing the controversies, and based on one's own experiences, each case must be addressed in a particular way. Only a few have PES and RFA criteria, a very successful curative procedure, but not without risk. Stimulation lacks the predominant role it used to have, but may help in prognostic stratification, despite variability across studies, the changes in the electrophysiological properties of the accessory pathways and the atrioventricular node, and the inducibility or non-inducibility of the arrhythmias. True, the debut may be a malignant arrhythmia (including fibrillation, flutter, atrial tachycardias and antidromic tachycardia). The various prognostic indices may be contradictory and point to both the benign and malignant nature in the same patient.

Noninvasive studies have a relative value. A simple and useful measure is that these patients carry an identification to avoid diagnostic errors (ventricular tachycardia, in case of arrhythmias with wide QRS by anterograde conduction through the accessory pathway, and myocardial infarction, in presence of QS in

sinus rhythm at any lead). Atrial fibrillation may also be due to other factors.

Pappone<sup>8</sup>, an advocate of PES and prophylactic RFA in asymptomatic patients, said it would be unjustified in low-risk individuals, and that it may lead to more complications than benefits.

If the RFA is going to be used regardless of the result of stimulation, then it could be done directly, or, is there any doubt?

It is difficult to give a strong opinion and have the last word with regard to the use or not of RFA in asymptomatic patients with accessory pathways. It will also depend on the patient, who must be informed with details of his illness and the risks and benefits of the procedure. The patient must actively participate in the decision made by the treating physician, in accordance with his scientific and philosophical conceptions. The handling of these problems cannot be all in one way or another: Should we wait? Should we intervene? Will the PES be used? Is it required a prophylactic ablation? The issue is complex and simple solutions do not solve it: "Expanding our diversity to expand our reach", Weaver 2008.

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