JACC Vol. 26, No. 4
October 1995:850–1

Editorial Comment

Radiofrequency Catheter Ablation of Benign Ventricular Ectopic Beats: A Therapy in Search of a Disease?*

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Radiofrequency catheter ablation is increasingly used in the treatment of cardiac arrhythmias. Typically, the patient has a tachyarrhythmia that is symptomatic and cannot be controlled and prevented by medication. Only occasionally, when an accessory atrioventricular (AV) pathway with a short anterograde refractory period is found in high level competitive athletes or in professions such as airline pilot or bus driver, the arrhythmia substrate is eliminated without the patient ever having had a symptomatic arrhythmia.

Ideally, the result of radiofrequency ablation leads to complete cure of the arrhythmia. However, there are situations in which radiofrequency ablation does not cure the arrhythmia, as in patients with atrial fibrillation and high ventricular rates. Then, by interrupting or modifying AV conduction, the arrhythmia becomes better tolerated and manageable.

Excellent results after radiofrequency ablation have been reported (1–5) in patients with AV node reentrant tachycardias, accessory AV pathway tachycardias and idiopathic ventricular tachycardia. Outcome after radiofrequency ablation is improving in patients with atrial tachycardia, atrial flutter and ischemic ventricular tachycardia (6–9).

However, apart from its radiation hazard, the radiofrequency ablation procedure is not without risks. Complications such as cardiac perforation leading to tamponade, coronary artery damage resulting in myocardial infarction, damage to heart valves, thromboembolic complications and infection have been reported. In a retrospective European radiofrequency catheter ablation survey in which 68 institutions voluntarily participated, procedure-related complications occurred in 223 (5%) of 4,398 patients (10). A total of five deaths occurred during or within the perioperative period after the ablation procedure. Although the complications occurred in a series of patients with different types of arrhythmias, these figures indicate that radiofrequency ablation is not an innocent procedure.

In this issue of the Journal, Zhu et al. (11) report on the successful radiofrequency ablation of frequent, monomorphic ventricular ectopic beats in 10 patients. In nine patients the site of origin was in the outflow tract of the right ventricle. In the remaining patient, ectopic activity arose from the left ventricular posteroseptal region. One patient had magnetic resonance imaging findings suggestive of arrhythmogenic right ventricular dysplasia. One patient had "mild" cardiomyopathy and another mitral valve prolapse with mild mitral incompetence. No abnormalities other than the arrhythmia were present in the other seven patients. All patients were characterized as having frequent, medically refractory and severely symptomatic ventricular premature beats. Direct correlation between the occurrence of symptoms and ventricular ectopic beats was documented by ambulatory electrocardiography. In none of the patients could sustained ventricular tachycardia be evoked by programmed stimulation with or without isoproterenol. In all patients techniques similar to those currently used in patients with sustained ventricular tachycardia (5) were used to identify and ablate the site of origin of the arrhythmia. However, no mention is made of the fluoroscopy times and total duration of the procedure. In the article by Zhu et al., patients came from three institutions. The procedures were performed by experienced clinical electrophysiologists, and there were no complications in this small series. The total number of patients with "benign" ventricular ectopic beats from whom the study patients were selected is not specified. It is also unclear what the threshold was in the three institutions for referral to radiofrequency ablation.

Complaints of palpitations, fatigue and dyspnea are well known to the physician who cares for patients with benign ventricular ectopic beats. It is important that the physician understand the anxiety and agony of doubt that often accompanies cardiac ectopic activity. However, in my experience most patients do not require medication if they can be reassured by appropriate (and sometimes frequent) counseling. When medication is required, a beta-blocking drug or a calcium antagonist such as verapamil or diltiazem are selected because of their low risk profile.

Recently, Gumbrielle et al. (12) published a case report under the title: "Is ventricular ectopy a legitimate target for ablation?" In an editorial in the same issue Garrett (13) concluded that radiofrequency ablation is a rare indication for the treatment of ventricular extrasystole. The article by Zhu et al. suggests that cardiologists may differ about the indication for radiofrequency ablation of benign ventricular ectopic beats. It is clear that life expectancy will not improve by successful radiofrequency ablation in these patients because the long-term prognosis of benign ventricular ectopic beats is excellent. I am concerned that some of our colleagues will accept the article by Zhu et al. as an invitation to approach bothersome but otherwise innocent ventricular ectopic activity by catheter

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0735-1097/95/$9.50
0735-1097(95)00281-8

ablation. That situation may develop into a therapy in search of a disease rather than the reverse!

The best solution would seem to be a randomized study in a series of patients fulfilling stringent criteria as to incidence and complaints of their benign ventricular ectopic activity comparing antiarrhythmic drug therapy and radiofrequency catheter ablation treatment. Such a study will give us an idea about complications, long-term efficacy, costs and the patient's quality of life of both modes of treatment and is in my opinion required before benign ventricular premature beats can be considered an indication for radiofrequency catheter ablation.

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