Nonpharmacologic Treatments for Atrial Fibrillation: Is the Hype Overblown?

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At one time, treating atrial fibrillation (AF) was rather simple and straightforward. Data from several multicenter controlled clinical trials confirmed that a simplified approach (such as use of rate control medications) was as good as an attempt to maintain sinus rhythm. Then, AF management became big business. Interest in nonpharmacologic treatment strategies grew. A new industry was created, with new enthusiasm for treating the more than 2 million Americans who have this sometimes symptomatic problem. Many clinicians and patients now consider nonpharmacologic approaches not only to reduce symptoms, but also in hopes of reduced mortality or a cure. In the process, data from controlled clinical trials have been largely ignored or purposely misinterpreted.

To be sure, AF can increase the risk of stroke and can cause various symptoms, some of which may be serious. Heart failure may ensue. More often, though, symptoms are rather mild. The main goal of any AF therapy is to improve symptoms and reduce risk of stroke; no controlled data from randomized trials support use of any therapy for AF to improve survival. Much of the purported need to institute aggressive therapies is simply hype. And, the tradeoff for a patient can be a potentially devastating complication (eg, stroke or death) from an unwarranted interventional procedure.

In an article in last month’s issue of this Journal, Drs Lee and Badhwar address nonpharmacologic treatment strategies for AF, including atrioventricular (AV) node ablation with pacemaker insertion, percutaneous AF ablation, and the surgical maze procedure. These approaches, not all of which are new, can be valuable adjuncts to treat AF, but where they fit into any management scheme is unclear from the authors’ review. Compared with rather extensive data on rate and rhythm control drugs, the fact is little definitive data support any nonpharmacologic approach.

All symptoms of AF are not alike and not every symptom requires treatment. Therapeutic recommendations for AF vary widely based on the patient, the clinician, and the clinical presentation. There is little consensus as to what symptoms should be treated or when pharmacologic therapies have failed. In just the past few years more than 2000 articles have been written on AF ablation alone—but without 1 well-matched placebo-controlled trial or 1 trial that has shown a definitive beneficial outcome. Though data do exist from select centers, these data remain interesting and hypothesis provoking rather than definitive or worthy of changing practice. On the other hand, a considerable amount of data (eg, from the Atrial Fibrillation Follow-up Investigation of Rhythm Management [AFFIRM] study, Rate Control Versus Electrical Cardioversion for Persistent Atrial Fibrillation [RACE] study, and several other well-controlled multicenter randomized clinical trials) indicate that a simple pharmacologic rate control approach is most often the way to go. Whereas these studies do not necessarily represent all patients with AF, there are no randomized, controlled data that support a nonpharmacologic approach over drug therapy.

It is possible that AF ablation is of particular use for an occasional highly symptomatic patient (the one most likely to respond to AF ablation), who has failed every other type of treatment. But, we must be careful here. Failure of therapy is a subjective term and open to wide interpretation, and should be clarified in practice and by study results. Does it mean the patient notices the presence of AF (or what is thought to be AF) or that 1 or 2 recurrences mandate a switch in therapy? An antiarrhythmic drug may be effective except for an occasional recurrence (eg, once every 6 months). Infrequent recurrence of AF on a medical regimen should not necessarily be considered treatment failure.

For those who embrace a nonpharmacologic approach, a key concept of AF ablation is that all AF has a single definable electrophysiologic mechanism that can be eliminated by tissue ablation in the posterior left atrium (around the pulmonary veins), assuming this is the cause. However, this may not be the case. Alternatively, AF may be due to several poorly understood mechanisms but there is no reason to suspect that AF is caused by 1, 2, or even 3 mechanisms. The observed response to ablation is empiric, not necessarily based on mechanism. And, knowledge of AF mechanisms has little if any bearing on patient outcomes. When a patient is taken to the laboratory for an ablation, the electrophysiologist does not set out to understand the mechanism before starting to burn. In addition, management is not necessarily simple after a percutaneous endocardial AF ablation. Many patients have recurrent AF. Though this may resolve over time, care for such patients may include drug therapy and anticoagulation in the interim.

The benefits of AV nodal ablation with pacemaker
implantation and for whom this approach is indicated also is unclear. AV nodal ablation with a pacemaker implantation can control the rate in AF and regularize the ventricular rhythm. But, how this approach is better than a drug that controls the ventricular response rate is unclear, as most individuals can have their rate controlled with a low-risk medication. With AV junctional ablation and pacing, a patient becomes pacemaker dependent and develops an induced left bundle branch block activation pattern related to right ventricular pacing.

The surgical maze has now progressed to newer, epicardial ablation techniques, some of which are minimally invasive. Unfortunately, multicenter randomized, controlled data comparing the real benefits of one approach to another are lacking. It would make most sense to collect such data before advocating potentially risky therapy for a large population of patients.

The costs of nonpharmacologic procedures are off the chart and difficult to measure accurately. No good data exist regarding the real expense of invasive nonpharmacologic therapies, especially in light of the complicating factors that often occur after the ablation (ie, hospitalization, anticoagulation, antiarrhythmic drugs, recurrent AF, stroke, and other complications including death). No comparative costs are known with regard to rate versus rhythm control approaches. But, no controlled data support the concept that AF management using a nonpharmacologic approach to reduce symptoms can improve functionality or reduce costs.

Clinicians should be aware of the evolving nonpharmacologic techniques available to treat AF. However, even for an electrophysiologist well versed in the research, the evidence, and the approach, the direction to take is often less clear. There have been recent changes in ablative techniques, including ablation of complex fractionated atrial electrograms and modification of the autonomic substrate, or consideration of single versus total pulmonary vein isolation versus a circumferential left atrial isolation (“Pappone”) technique. References 3 to 4 years old are already becoming out of date. There have been a multitude of articles written on AF ablation in the past few years, and with a multiplicity of techniques. It is difficult, if not impossible, to sort through what works and what is simply hype. Some recent approaches to AF ablation have shown high acute and even long-term success rates of AF ablation. Other data are not so positive.

Patients have been given great reason for hope using an ablation approach. Perhaps that is part of the mechanism for benefit from ablative techniques for AF: expectation and placebo. Perhaps patients are the driving force encouraging a more aggressive approach to treatment. Other highly symptomatic conditions have not encouraged similar potentially risky therapeutic misadventures (eg, overactive bladder and dysosmia). Ablation has never been tested against a matched placebo and likely never will be, but that certainly does not support the idea that ablation for relief of symptoms is necessarily the correct approach.

CONCLUSIONS

In sum, data regarding nonpharmacologic techniques to treat AF are emerging but there is no methodology to decide which approach is appropriate and for which patient(s). Nonpharmacologic treatment for AF may have a major impact on patients’ lives, but despite much work in this area and much hope of cure, the available evidence is simply not strong enough to recommend such an approach at this time. Nonpharmacologic approaches must be put into perspective along with the other easily available, less aggressive, and less nosious therapies. Drug therapy remains the mainstay of management. Nonpharmacologic therapy advocates cannot change that fact.

References