

Should catheter ablation be the first line of treatment for atrial fibrillation?

CATHETER ABLATION for atrial fibrillation has evolved since it was introduced a decade ago. It will continue to improve as we gain experience with the procedure, better understand the pathophysiology of atrial fibrillation, and develop new technologies for imaging, catheter navigation, and more effective ablation of atrial tissue. The topic is reviewed by Chowdhury et al¹ in this issue of the *Cleveland Clinic Journal of Medicine*.

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An important question is whether catheter ablation should replace antiarrhythmic drugs as the first line of therapy. The answer will be determined by the procedure's success rate, complication rate, cost, and long-term outcomes compared with drug therapy.

■ RELATIVELY FEW RANDOMIZED TRIALS, BUT ENCOURAGING RESULTS

Relatively few randomized trials have compared catheter ablation and medical therapy.

In patients with paroxysmal atrial fibrillation, three important randomized trials²⁻⁴ have shown catheter ablation to be superior to antiarrhythmic drug therapy. In these trials, freedom from atrial fibrillation or atrial flutter was achieved in 63% to 93% of patients who underwent ablation compared with 17% to 35% of those assigned to drug therapy. However, more than one ablation procedure may be required to achieve success rates in the higher range. Further, these studies were done

at “high-volume” centers, and they excluded patients with major comorbidities.

Persistent or long-standing atrial fibrillation is more complex than paroxysmal atrial fibrillation. It is more often accompanied by significant comorbidities, and comparative trials have generally excluded patients with these attributes. Fewer of such patients obtain complete success (ie, cure), and more of them need a second ablation procedure.

Oral et al⁵ randomly assigned patients with long-standing atrial fibrillation to be treated with amiodarone (Cordarone) or catheter ablation. The analysis of this study was complicated by a high rate of crossover from the drug therapy group to the ablation group. Twenty-five (32%) of the 77 patients assigned to undergo ablation needed a second procedure, but at 12 months 74% were in sinus rhythm without amiodarone, compared with only 4% treated with amiodarone without ablation.

These results indicate that ablation is more effective than medical therapy for paroxysmal atrial fibrillation, and it appears to be more effective than drugs alone for long-standing persistent atrial fibrillation. In addition, quality of life was better after ablation, and complications were relatively few.²⁻⁴

The limitations are that the trials were done at hospitals in which the ablation teams had a lot of experience, did many ablation procedures per year, and tracked their outcomes carefully: other hospitals may not be able to achieve the same results. Moreover, many patients referred for ablation have heart failure, significant valvular disease, or left atrial enlargement, which would have excluded them from the published trials.

Catheter ablation is evolving and continues to improve

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MORE STUDIES UNDER WAY

Two other initiatives may help define the role of ablation for atrial fibrillation.

The Cardiac Ablation vs Antiarrhythmic Drug Therapy for Atrial Fibrillation (the CABANA) trial is a multicenter randomized longitudinal study designed to determine whether ablation is more effective than drug therapy. Target enrollment is 3,000 patients.

The National Cardiovascular Data Registry is exploring the possibility of establishing a registry for ablation of atrial fibrillation. This database could be used by physicians, hospitals, the Centers for Medicare & Medicaid Services, and the US Food and Drug Administration to track overall outcomes of these complex procedures.

FOR NOW, DRUGS ARE STILL THE FIRST-LINE TREATMENT

For now, I believe that antiarrhythmic drugs should remain the first line of treatment for atrial fibrillation until cumulative evidence from additional randomized multicenter trials

proves otherwise. However, the threshold for deciding to do an ablation procedure is getting lower, and it is reasonable for patients to make an informed decision to move directly to ablation as an alternative to drug therapy if that is their preference.

To make these decisions, patients need accurate information about success rates and the risk of complications at the center where the procedure is to be performed. At Cleveland Clinic, where more than 4,300 ablation procedures have been performed for atrial fibrillation, substantial resources are devoted to tracking outcomes. As the government and insurance companies focus on pay for performance and as ablation procedures for atrial fibrillation become more widespread and new technologies are introduced, it will be especially important for hospitals to track their own costs and outcomes.

The cumulative experience from well-designed clinical trials will provide guidance, but unless hospitals verify that they achieve results equivalent to those in the trials, physicians should be cautious about recommending ablation as the first-line therapy. ■

REFERENCES

1. Chowdhury P, Lewis R, Schweikert R, Cummings JE. Catheter ablation for the treatment of atrial fibrillation. *Cleve Clin J Med* 2009; 76:543–550.
2. Pappone C, Augello G, Sala S, et al. A randomized trial of circumferential pulmonary vein ablation versus antiarrhythmic drug therapy in paroxysmal atrial fibrillation: the APAF Study. *J Am Coll Cardiol* 2006; 48:2340–2347.
3. Jais P, Cauchemez, Macle L, et al. Catheter ablation versus antiarrhythmic drugs for atrial fibrillation: the A4 Study. *Circulation* 2008; 118:2498–2505.
4. Wilber DJ, Pappone C, Neuzil P, et al; The Thermocool AF

Investigators. Recurrent atrial arrhythmias and quality-of-life in patients with paroxysmal atrial fibrillation treated by radiofrequency catheter ablation compared to antiarrhythmic drug therapy: final results of the Thermocool AF trial. Presented at the Heart Rhythm Society Annual Scientific Sessions, May 13–19 2009, Boston, MA.

5. Oral H, Pappone C, Chugh A, et al. Circumferential pulmonary-vein ablation for chronic atrial fibrillation. *N Engl J Med* 2006; 354:934–941.

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