

Journal Review



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# Catheter Ablation for Atrial Fibrillation in Patients with Obesity

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## Introduction

Obesity is a risk factor for atrial fibrillation (AF) and common comorbid conditions such as hypertension, sleep apnea, and structural heart disease. This study was designed to determine whether catheter ablation of AF can be performed safely and effectively in obese and overweight patients compared with patients with normal body weight.

# Methods

A cohort of 523 patients with symptomatic AF undergoing radiofrequency ablation at a single institution was included in this study. Body weight was determined and patients were stratified by body mass index into three groups: lean (BMI < 25 kg/m2), overweight (BMI 25-29.9 kg/m2) and obese (BMI  $\geq$  30 kg/m2). Two techniques for atrial fibrillation ablation were employed: 298 patients underwent pulmonary vein ostial ablation with a 5mm tip ablation catheter and 222 patients underwent wide-area circumferential ablation outside the pulmonary vein ostia with an 8mm tip ablation catheter. Patients in this second group also underwent creation of linear lesions and ablation of focal triggers of AF identified during isoproterenol infusion.

Patients were followed up with a 24-hour Holter monitor 3 months after the ablation. Follow-up af-

ter that time was performed by telephone, annual questionnaires, and with intermittent monitoring, though the method and timing of monitoring is not well-described. Quality of life questionnaires were administered 3 and 12 months after ablation. Outcomes are reported at 12 and 24 months after ablation but Kaplan-Meier curves are not provided.

#### Results

The majority of patients (58%) had paroxysmal AF. Only 18% of patients were classified as lean, while 44% were overweight and 38% were obese. Patients with higher BMI were younger, more likely to have persistent AF, hypertension, diabetes, structural heart disease, left atrial enlargement, and sleep apnea. Despite the increased prevalence of these comorbidities, no significant difference in the rate of freedom from AF was seen among the groups at the 12-month and 24-month follow up points. At the 24 months, 74% of lean, 73% of overweight, and 69% of obese patients were free of AF. Significantly more obese patients (48%) were lost to follow-up, which is a limitation of the study. All groups had a significant improvement in quality of life scores at the 12-month follow-up visit, and improvement in these scores was associated with maintenance of sinus rhythm. Obese patients had similar fluo-

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roscopy times during the procedure, but radiation exposure was nearly triple in obese patients compared with lean patients (1.97 Gy vs. 0.69 Gy). Serious complication rates were moderate (5%) but similar across different BMI classes.

# **Conclusion and Comment**

Many patients with AF are obese, and this retrospective cohort study suggests that radiofrequency ablation is equally efficacious for patients across different body weights. One important consideration when performing ablation in obese patients is that radiation dose is markedly increased due to the nonlinear relationship of radiation dose to body size. This must be a consideration when discussing ablation procedures with patients, particularly if repeat procedures (performed in 17% of patients in this study) may be necessary. The outcomes reported in this study are primarily based on patient-reported symptoms and routine ambulatory monitoring was not performed after 3 months. Since asymptomatic AF may be more common after ablation, the method of symptomatic outcome reporting may significantly overestimate success rates. The results are also reported on a monthly basis and cumulative success rates are not reported. It is unclear whether these factors may interact with obesity (for instance, if obese patients had more asymptomatic AF) to limit the results of this study. Further research on this topic may be required.

#### Disclosures

None to disclose in context of current subject matter