

Measuring the success of pulmonary vein ablation

Hans Kottkamp, MD

Clinic Hirslanden – Heart Center, Zurich, Switzerland

Curative treatment of atrial fibrillation (AF) is one of the major challenges of today's electrophysiology. The growing knowledge of initiating triggers and perpetuating substrate has led to the development of potentially curative catheter ablation procedures, e.g. pulmonary vein isolation.

However, inconsistent treatment results have caused difficulties judging the efficacy of the individual ablation approach. Apart from differences in patient selection, ablation technique, and operator experience, the varying results are also partly due to differences in the methods used for follow-up.

In a prospective study, we investigated the perception of AF before and after radiofrequency catheter ablation with specific emphasis on the relevance of asymptomatic arrhythmia recurrences. Continuous 7-day-ECG recordings were performed before and after ablation as well as after 3, 6 and 12 months of follow-up. The patients (pts) recorded a detailed symptom log. Before ablation, 92 of 114 pts (81%) had documented AF episodes. All episodes were symptomatic in 35 pts (38%). In 52 pts (57%), both symptomatic and asymptomatic episodes were recorded, whereas in only 5 patients (5%), all documented AF episodes were asymptomatic. After ablation, the percentage of pts with only asymptomatic AF recurrences increased significantly to 37 % at the 6-month follow-up.

In another study in pts undergoing AF ablation, transtelephonic ECGs were transmitted every 2 days for 6 months in addition to periodic 7-day Holter recordings. With both types of follow-up, symptoms and rhythm were correlated. Transtelephonic ECG and serial 7-day-ECG were found equally effective in determining long-term success and to detect asymptomatic patients.

In conclusion, even in patients presenting with highly symptomatic AF, asymptomatic episodes may occur and significantly increase after catheter ablation. A symptom-based follow-up would substantially overestimate the success rate. Objective measures are needed to identify asymptomatic AF recurrences after ablation.