Approaches to Catheter Ablation for Persistent Atrial Fibrillation

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ABSTRACT

BACKGROUND

Catheter ablation is less successful for persistent atrial fibrillation than for paroxysmal atrial fibrillation. Guidelines suggest that adjuvant substrate modification in addition to pulmonary-vein isolation is required in persistent atrial fibrillation.

METHODS

We randomly assigned 589 patients with persistent atrial fibrillation in a 1:4:4 ratio to ablation with pulmonary-vein isolation alone (67 patients), pulmonary-vein isolation plus ablation of electrograms showing complex fractionated activity (263 patients), or pulmonary-vein isolation plus additional linear ablation across the left atrial roof and mitral valve isthmus (259 patients). The duration of follow-up was 18 months. The primary end point was freedom from any documented recurrence of atrial fibrillation lasting longer than 30 seconds after a single ablation procedure.

RESULTS

Procedure time was significantly shorter for pulmonary-vein isolation alone than for the other two procedures ($P<0.001$). After 18 months, 59% of patients assigned to pulmonary-vein isolation alone were free from recurrent atrial fibrillation, as compared with 49% of patients assigned to pulmonary-vein isolation plus complex electrogram ablation and 46% of patients assigned to pulmonary-vein isolation plus linear ablation ($P=0.15$). There were also no significant differences among the three groups for the secondary end points, including freedom from atrial fibrillation after two ablation procedures and freedom from any atrial arrhythmia. Complications included tamponade (three patients), stroke or transient ischemic attack (three patients), and atrioesophageal fistula (one patient).

CONCLUSIONS

Among patients with persistent atrial fibrillation, we found no reduction in the rate of recurrent atrial fibrillation when either linear ablation or ablation of complex fractionated electrograms was performed in addition to pulmonary-vein isolation. (Funded by St. Jude Medical; ClinicalTrials.gov number, NCT01203748.)