

# Acute and long-term outcomes of pulmonary vein isolation and ablation of low-voltage areas for non-paroxysmal atrial fibrillation

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## Abstract

**Introduction:** Pulmonary vein isolation is not sufficient for the treatment of non-paroxysmal atrial fibrillation (AF). We aimed to clarify the effects of pulmonary vein isolation and left atrial low-voltage area ablation on acute termination of AF and freedom from AF. **Methods:** Ninety-five patients with non-paroxysmal AF were prospectively divided into left atrial substrates modification-first (LASM-first, n=47) and pulmonary vein isolation-first (PVI-first, n=48) groups. All patients underwent ablation during AF with acute AF termination as the procedural endpoint. In the former, LASM was performed, and PVI was performed only if AF termination was unsuccessful. In the latter, PVI was performed to observe whether AF was terminated, and if not, LASM was performed. In non-terminating AF, electrical cardioversion was performed. The patients were followed up 3, 6, and 12 months after ablation. **Results:** More patients reached the procedural endpoint with LASM alone than with PVI alone (45% vs. 15%;  $P < 0.01$ ). Of the 95 patients, acute termination of AF occurred in 67 patients (70.5% median follow-up of 15 months, 69 of 95 patients (72.6% freedom from AF. More patients with AF termination with LASM alone achieved freedom from AF when compared to those who had undergone PVI alone (86% vs. 43%;  $P=0.04$ ). **Conclusions:** LASM terminated non-paroxysmal AF in nearly half of the cases, with a better rate of freedom from AF when compared to cases without AF termination. However, for PVI, AF termination did not lead to better AF freedom rate.

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