Catheter ablation has been widely accepted as a therapeutic option for several types of atrial fibrillation (AF). A high procedural success rate of pulmonary vein isolation (PVI) guided by fluoroscopy or 3D mapping systems has been reported in patients with paroxysmal AF. On the contrary, PVI is considered insufficient to cure persistent or long-standing persistent AF (of more than one year) and several substrate modification methods are usually required. However, substrate modification may not be required in some of those patients. In our institute, ablation including extensive PVI has been performed in persistent AF (of less than one year), resulting in 85% of the patients being AF free. In patients with long-standing AF, those with maintenance of sinus rhythm at least 5 days after an electrical cardioversion before the procedure (approximately half of the patients with long-standing persistent AF) sinus rhythm was maintained in 90% after the PVI alone. In the remaining patients, sinus rhythm was maintained in 63% of the patients after the PVI, posterior left atrial isolation and left isthmus block mimicking a maze procedure. These findings suggest that patients with even persistent or long-standing persistent AF include patients amenable to PVI based ablation, and the response to the electrical cardioversion before the ablation procedure may be helpful in the selection of the optimal ablation strategy for the patients with long-standing persistent AF.

Keywords: catheter ablation, atrial fibrillation