

Nonpharmacologic Treatment of Atrial Fibrillation

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Atrial fibrillation is the most common arrhythmia in the adult patients. The major impact of atrial fibrillation is the occurrence of thromboembolic events, tachycardia-induced myopathy, increase of morbidity and mortality, and impairment of life quality. Although several large-scale randomized clinical trials have proved the rate control is better than rhythm control for treatment of atrial fibrillation, these trials results are based on old-age patients, and most of these trials were conducted before the catheter ablation therapy becomes popular.

It has been more than 10 years since the first case report of atrial fibrillation (AF) ablation. The two pioneer reports of atrial fibrillation ablation came from France, Bordeaux hospital and Taiwan, Taipei Veterans General Hospital group at 1998 and 1999. Currently, AF ablation has been formally indicated as the standard treatment in patients with symptomatic atrial fibrillation who fail to one antiarrhythmic drug, despite it is paroxysmal or chronic AF, elderly or young age patients, or they are associated with mild structural heart disease. The major reasons of considering the AF ablation as the second line, standard therapy (not the investigative therapy) are based on the clinical trials published in the literatures. In general, 75-90% of AF can be eliminated after 12 months follow up, with 20-30% of patients need two or three ablation procedures.

Currently, several different ablation techniques are considered for AF ablation. The two major techniques are anatomically guided left atrial ablation, vs pulmonary vein antrum circumferential ablation with conduction block between pulmonary vein and left atrium. Target on the fractionated electrograms, high dominant frequency areas, and vagal denervation are considered as the palliative therapy.

New technology for AF ablation is focused on the energy source (Radiofrequency, Laser, or Cryoablation) and design of ablation catheter (Balloon, Mesh, or Circle). Large scale and multiple center trials are still pending, but the AF ablation technique and device will be improved in the very near future. However, for the patients with severe structural heart disease, the treatment modalities should be individualized