

Atrial fibrillation: what do we know and what we can do in 2017?

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Atrial fibrillation (AF) is the most common tachyarrhythmia, and it is estimated that almost 25% of the middle-aged adults in Europe and US will develop AF. AF prevalence is increased with age, hypertension, valve disease, heart failure, coronary artery disease, obesity, diabetes mellitus and chronic kidney disease. AF is a condition associated with increased all cause mortality (two-fold in women and 1.5 fold in men). Stroke, left ventricular dysfunction, and death related to these pathologies, cognitive decline and vascular dementia, increased hospitalizations and impaired quality of life, are conditions associated with AF.

The underlying pathophysiology varies among different AF types; triggers at the pulmonary vein ostia being the most common in the paroxysmal type in the absence of structural heart disease, and multiple wavelets, nests and rotors associated with abnormal substrate (presence of fibrosis) in patients with structural heart disease. In the recent years there is increased evidence that AF is an expression of an atrial cardiomyopathy, even in the "lone" type.

Important points to consider during the therapeutic approach are the following: understanding the substrate, calculating the thromboembolic risk and stroke prophylaxis, and preventing AF recurrences.

There is increasing evidence that certain types of AF are genetically predisposed. The use of novel techniques (MRI, electro-anatomic mapping, signal analysis using wavelets, etc) has shown the association between the extent of fibrosis, frequency of episodes, clinical type and prognosis of AF.

Anticoagulation is the first line treatment for thromboembolic event prophylaxis in the majority of patients with AF, as assessed by CHADS₂VASc score. In the recently published European Society of Cardiology guidelines aspirin is no longer used for thromboembolic prophylaxis in patients without contraindications for anticoagulation. The non-VKA oral anticoagulants (NOACs) are preferred to direct oral antagonists vitamin K antagonists (VKAs), since the former cause significantly less intracranial bleeding compared to the VKAs. In selected patients with increased risk for thromboembolic events, in whom anticoagulation is contraindicated, the left atrial-occluding device can be used.

Rhythm control can be achieved with medical treatment or interventional therapy (ablation or surgery). Ablation has been proven by randomized trials to be superior compared to antiarrhythmic drugs for long-term maintenance of sinus rhythm. Radiofrequency or cryo energies have been used for ablation with similar success rates. In 30-40% of patients a second procedure is required for long-term success. In the initial procedure electric isolation of all pulmonary veins is the target, leaving more complex maneuvers for the redo procedure (i.e. roof or mitral isthmus lines, ganglia etc). Due to the satisfactory results of ablation this can be proposed as the first line treatment option in experienced centers. In Greece, data from the National Ablation Registry show that this procedure is the most common ablation type performed, and the results and complications are similar to those from established, big-volume European or US centers.

Current research is aiming towards the early diagnosis, thromboembolic prophylaxis and treatment of AF, and new technology (including ablation using MRI) is developing for the safer and more successful elimination of AF episodes. The physician should be familiar with all available therapies, assess each patient individually and propose the best available treatment in order to minimize mortality and improve quality of life.