Treatment of atrial fibrillation in the elderly: time for a change?

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Atrial fibrillation (AF) is the most common arrhythmia. The prevalence of AF is highly age dependent as the median age of AF patients is 75 years and at least 70% of AF patients are between 65 and 85 years old [1, 2]. With increasing life expectancy, AF prevalence will increase 2.5 times during the next 40 years and constitute an even more important health concern [1].

Symptoms may change as AF progresses from paroxysmal to permanent, especially in the elderly. Palpitations are more common among patients <65 years compared with patients aged 65–80 years (61% and 46%, respectively). However, other symptoms, such as dyspnoea and fatigue, are more prevailing in the elderly resulting in overall presence of symptoms in 75% among patients <65 years and 67% among patients between 65 and 80 years (Euro Heart Survey on AF, personal communications by HJGM Crijns). Care of AF patients poses a very high economic burden on society. The annual costs of the average AF patient are over 3000 euro (3600 US dollars), with hospitalisation and medication being the largest cost drivers, 52% and 23%, respectively [2].

AF-associated risks are age-dependent [2]. Age is not only an independent risk factor for stroke, but also for mortality after stroke. Treatment of symptomatic AF in the elderly is characterised by special challenges. Comorbid conditions, degenerative changes of the sinus node, myocardium and cardiac conduction system, as well as age-related changes in pharmacokinetics and usage of multiple drugs are typical in the elderly population. These conditions probably underlie the observation by the

AFFIRM investigators that in the elderly pharmacological rhythm control is associated with an increase in mortality compared with rate control [3].

Amiodarone is considered the most effective antiarrhythmic drug (AAD) for the prevention of recurrence of atrial fibrillation [4]. However, its good antiarrhythmic effect is offset by numerous and potentially serious side effects. In this study by Roy et al. on amiodarone for the treatment of paroxysmal AF, 18% of patients discontinued amiodarone because of side effects [4]. Although studied extensively in many patient groups, there are no data on side effects, safety and effectiveness for the use of amiodarone in the elderly population. Nevertheless, sinus node dysfunction and conduction disease, prevalent conditions in the elderly, are generally accepted as contraindications for the use of amiodarone.

In regard of the above considerations, catheter ablation of AF could prove to be a relevant treatment option in elderly AF patients with pertaining symptoms despite optimal pharmacological treatment. Pulmonary vein isolation (PVI) has developed into an accepted treatment option for symptomatic atrial fibrillation, as stated in recent guidelines from both Europe and the USA [2, 5]. Multiple randomised trials have clearly evidenced that PVI is superior to drug treatment for maintenance of sinus rhythm. Paradoxically, despite their numeric supremacy, elderly patients have been excluded from randomised ablation trials, thus far. Only retrospective analyses on PVI in the elderly have been published; these registries in selected patients showed that efficacy of this catheter treatment was similar between various age groups [6].

PVI will introduce additional, procedure-related risks. These risks have been well described in the younger age groups and are small and considered acceptable for treatment of symptomatic AF in younger patients with

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symptomatic AF. In an earlier yet large worldwide survey on PVI complications (in 8745 patients treated between 1995 and 2002), the following prevalence of serious complications has been described: stroke 0.28%, tamponade 1.22% and death 0.05% [7]. As the above-mentioned retrospective analyses also showed comparable safety of PVI among the various age groups, it seems fair to assume that similar procedural risk rates apply to elderly patients. Procedural risks must, also, be balanced against the risk of pharmacological rhythm control, which is considered high in the elderly. Therefore, more effective treatment may reduce morbidity and potentially even mortality due to AF and its pharmacological treatment in the elderly patient even more than in younger patients.

Based on the above considerations the Pulmonary Vein Ablation Versus Amiodarone in the Elderly study (PAVANE) was initiated to test whether PVI is a safe and more effective treatment option. In this multicentre trial, patients ≥ 70 years with symptomatic paroxysmal AF are randomised to either PVI through radiofrequency ablation or treatment with amiodarone, which is current practice in this patient population. The primary endpoint is recurrence of AF during a minimal follow-up of 1 year. Secondary endpoints are formed by a combined clinical endpoint of death, stroke, and unplanned hospitalisation, as well as incidence of procedure-related and drug-related adverse events, quality of life and cost-effectiveness. In this study, initiated by the Catharina Hospital in Eindhoven, in collaboration with the Onze Lieve Vrouwe Gasthuis (OLVG) Hospital Amsterdam, Medical

Spectrum Twente Hospital and St. Anna Hospital in Geldrop, we aim to demonstrate that PVI in the elderly is a safe treatment option, which is superior to amiodarone with respect to efficacy and cost-effectiveness.

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References

1. Go AS, Hylek EM, Phillips BA. Atrial fibrillation in adults. ATRIA study. *JAMA*. 2001;285:2370–5.
2. Fuster V, Rydén LE, Cannom DS, et al. ACC/AHA/ESC 2006 guidelines for the management of patient with atrial fibrillation. *JACC*. 2006;48:e149–246.
3. AFFIRM investigators. A comparison of rate control and rhythm control in patients with atrial fibrillation. *N Engl J Med*. 2002;347:1825–33.
4. Roy D, Talajic M, Dorian P, et al. Amiodarone to prevent recurrence of atrial fibrillation. *N Engl J Med*. 2000;342:913–20.
5. Camm AJ, Kirchhof P, Lip GY, et al. Guidelines for the management of atrial fibrillation: the task force for the management of atrial fibrillation of the European Society of Cardiology (ESC). *Eur Heart J*. 2010;31:2369–429.
6. Bunch TJ, Weiss JP, Crandall BG, et al. Long-term clinical efficacy and risk of catheter ablation for atrial fibrillation in octogenarians. *PACE*. 2010;33:146–55.
7. Cappato R, Calkins H, Chen SA, et al. Worldwide survey on the methods, efficacy, and safety of catheter ablation for human atrial fibrillation. *Circulation*. 2005;111:1100–5.