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## EDITOR'S PAGE

# A new era in arrhythmia management: From medical treatment to invasive strategies



Over the last three decades, advancements in the invasive management of coronary artery disease and structural heart disease have led to progress in cardiovascular medicine.<sup>1–4</sup> Nevertheless, arrhythmias, especially atrial fibrillation, affects 2 to 3 million Americans, and the incidence of arrhythmias is projected to increase to 16 million by the year 2050, causing significant morbidity and mortality. In addition, medical costs are calculated as approximately 15.500 US dollars per year.<sup>5–9</sup>

Previously, the management of cardiac arrhythmias was mainly based on medical management with equivocal results. However, treatment of arrhythmias during the last decade has changed considerably with the increased use of cardiac devices and evolution of electrophysiology studies and catheter ablation strategies.<sup>10,11</sup>

The evolution of invasive electrophysiology has significantly changed diagnostic strategies and the management of arrhythmic events. In this issue of *The Hellenic Journal Cardiology*, Tsiachris D et al focused on the management of non-documented palpitations or phantom tachycardias.<sup>12</sup> As highlighted in this article, phantom tachycardias are palpitations that are deemed to be of unknown origin after evaluation with conventional diagnostic tools, such as 12-lead electrocardiogram and Holter recordings. According to the aforementioned document, the majority of this population has abnormal electrophysiologic results with atrio-ventricular nodal tachycardia as the most common findings, which are resolved after catheter ablation. These findings increase the safety and effectiveness of invasive electrophysiology as both a diagnostic and therapeutic technique when performed by experienced operators.

Cryoballoon ablation has evolved as a safe and efficacious method for the management of atrial fibrillation,<sup>13</sup> whereas catheter ablation as a long-term rhythm control therapy to improve atrial fibrillation symptoms has an indication of Ila based on patient choice over long-term anti-arrhythmic drug therapy.<sup>14</sup> However, differences exist between radio-frequency and cryoballoon ablation as presented in [Table 1](#).

Moreover, the introduction of new techniques and new oral anticoagulants raised questions concerning the best periprocedural anticoagulation method. This question is examined by Baltogiannis G et al in a cohort study published in this issue of *The Hellenic Journal Cardiology*.<sup>15</sup> Based on their findings in patients undergoing cryoballoon ablation for atrial fibrillation management, new oral anticoagulants have been proven to be as effective as uninterrupted warfarin in terms of bleeding complications and thromboembolic events, highlighting the importance of proper anticoagulation management. The authors also discuss that cryoballoon ablation appears to be a less thrombogenic ablation method.

Concerning advancements in other fields of invasive cardiology, we note the increasing prevalence and experience of the use of the trans-radial approach in coronary angiographies in northern and central Greece over recent years, as presented by Ziakas A. et al.<sup>16</sup> Interestingly, Brilakis ES. and Karatasakis A. comment on the increasing trends in the use of the trans-radial approach, suggesting that the economic crisis may accelerate the adaptation of the trans-radial approach to manage the increasing volume of coronary angiograms in the public health system.<sup>17</sup>

Moreover, in recent years, recanalization of chronic total occlusion with retrograde and antegrade techniques can be achieved even in bifurcation lesions, highlighting the increasing experience of operators and evolution of technologic equipment as presented in a case report by Konstantinidis et al.<sup>18</sup>

Importantly, invasive cardiology is also involved in the treatment of mitral valve disease as presented in an interesting case report in this issue of *The Hellenic Journal Cardiology* by Condado JF et al.<sup>19</sup> Mitral clips<sup>20</sup> may be an option in patients with prior unsuccessful mitral valve repair and residual regurgitation trans-catheter mitral valve-in ring replacement and valve-in-valve replacement.

At the end of this editorial, we present changes in the understanding and management of pericardial diseases and diabetes mellitus.

Diabetes mellitus is not a cardiovascular disease, but its main complications are of cardiovascular etiology. Accordingly, effective treatments not only control the glycemic

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**Table 1** Comparison of pulmonary vein isolations techniques (radiofrequency vs. cryoballoon ablation) for atrial fibrillation management.

	Radiofrequency Ablation	Cryoballoon Ablation
Efficacy	Similar	
Safety	Similar	
Procedure duration	(↑) Longer time	(↓) Shorter time
Fluoroscopy time	(↓) Shorter time	(↑) Longer time
Catheter steering	Electroanatomical mapping	Contrast injection and fluoroscopic examination
Ability for additional substrate modification	Yes	No
Thrombogenicity	(↑) Higher	(↓) Lower

status but also decrease cardiovascular complications and events. In the last five years, a few agents have entered the therapeutic armamentarium, such as dipeptidyl-peptidase-4, glucagon-like peptide-1 and sodium glucose co-transporter 2 inhibitors, which have neutral or positive results concerning cardiovascular outcome and all-cause mortality. However, as emphasized by Skliros NP et al in this issue of *The Hellenic Journal Cardiology*, further studies should be performed to prove the safety and cardiovascular efficacy of this class of anti-diabetic drugs.<sup>21</sup>

Although common, pericardial disorders are not a focus of interest in the cardiologic society, and even simple forms of acute pericarditis can be complicated with cardiac tamponade and constrictive pericarditis, especially when sub-optimally treated. These issues are presented by Lazaros G. et al in a review article summarizing the most important changes in the diagnosis and management of pericardial diseases. This article provides important clinical clues and a step-by-step approach in the clinical work-up of pericardial diseases.<sup>22</sup>

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