Arrhythmias and device therapy

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Arrhythmias are an important cause of symptoms, stroke, syncope, and sudden death among cardiovascular patients. Often such events come as a surprise to both physicians and patients. Thus, the prevention of arrhythmic events has become an important part of cardiovascular prevention using both drugs and devices. To help physicians in their clinical practice, the European Society of Cardiology in collaboration with the European Heart Journal has published a series of practice guidelines on this subject such as, for instance, those on cardiac pacing and cardiac resynchronization therapy or on the management of patients with atrial fibrillation (AF).

Many papers on cardiac arrhythmias have been published in this journal and the scientific literature at large. The most important of these published in the past year are summarized elegantly in The year in cardiology 2014: arrhythmias and device therapy by Hein Heidbuchel and Gerhard Hindricks from Hasselt, Belgium and Leipzig, Germany. The authors stress the fact that electrophysiology remains a growing part of modern cardiology. While technical innovation is a key factor in invasive electrophysiology (for both ablation and device therapy), understanding the mechanisms, natural course, and evaluation of arrhythmias is the cornerstone of progress. The year 2014 brought many novel insights and technical innovations, but also many large-scale studies and trials with relevance to clinical practice. The key findings of these studies are summarized and put into clinical perspective.

This review of accomplishments in arrhythmias and devices in 2014 is followed by a Current Opinion article entitled History taking as a diagnostic test in patients with syncope: developing expertise in syncope by Wouter Wieling et al. It focuses on the circumstances of transient losses of consciousness (T-LOC) within a comprehensive diagnostic work-up of such patients. Rightly so, the European Society of Cardiology Guidelines on syncope recommend that the initial work-up of a suspected syncope should involve history taking, a physical examination, and an ECG as the circumstances of the event in particular usually provide high diagnostic yield. Surprisingly, there is relatively little research on how data from the medical history are collected and analyzed in patients. The diagnostic yield of the initial work-up by non-expert physicians in T-LOC appears to be as high as 60–70%, with history taking the main factor, while, after standardized evaluation in dedicated divisions, up to 85% of the patients might receive a proper diagnosis. The diagnostic yield of expert history taking in patients undiagnosed after standardized approaches, however, is unknown. The Current Opinion article provided by Wieling et al. concentrates on the roles of evidence-based point scores and expert history taking in diagnosing suspected syncope.

The first original research paper on the topic, Risk of ischaemic stroke according to pattern of atrial fibrillation: analysis of 6563 aspirin-treated patients in ACTIVE-A and AVERROES, by Thomas Vanasse et al. is a subanalysis of the ACTIVE-A and AVERROES trials which investigated the AF pattern as a predictor of stroke. To that end, the authors analysed the rates of stroke and systemic embolism in 6563 aspirin-treated patients with AF. The CHA2DS2-VASc score was similar in patients with paroxysmal and persistent AF (3.1 ± 1.4), but slightly higher in those with permanent AF (3.6 ± 1.5, P < 0.001). Yearly ischaemic stroke rates were 2.1, 3.0, and 4.2% for paroxysmal, persistent, and permanent AF, respectively. Multivariable analysis identified age ≥75 years, sex, history of stroke or transient ischaemic attack (TIA), and AF pattern as independent predictors of stroke, with AF pattern being the second strongest predictor after prior stroke or TIA. This manuscript is discussed in an interesting Editorial by Joshua M. Arkin from the Lankenau Medical Center.

The second original research paper, entitled Higher risk of death and stroke in patients with persistent vs. paroxysmal atrial fibrillation: results from the ROCkET-AF Trial, by Benjamin A. Steinberg et al. further expands on this issue by comparing outcomes in patients with persistent vs. paroxysmal AF receiving oral anticoagulation. A total of 14,264 patients randomized in the Rivaroxaban Once Daily Oral Direct Factor Xa Inhibition Compared With Vitamin K Antagonism for Prevention of Stroke and Embolism Trial in Atrial Fibrillation (ROCKET-AF) trial were analysed by AF pattern. Of these, 82% had persistent AF and 18% paroxysmal AF. Patients with persistent AF were slightly older, less likely to be female, but more likely to be a previous vitamin K user. Of note, patients with persistent AF had higher adjusted rates of stroke or systemic embolism and all-cause mortality, while rates of major bleeding were similar. Rates of stroke or systemic embolism in both types of AF did not differ by treatment assignment. Thus, in patients with AF at moderate to high risk of stroke receiving anticoagulation, those with persistent AF have a higher risk of thrombo-embolic events and worse survival compared with those with paroxysmal AF.

In the third article, Balancing stroke and bleeding risks in patients with atrial fibrillation and renal failure: the Swedish Atrial Fibrillation Cohort study by Leif Friberg, Lena Benson, and Gregory Y.H. Lip, the authors aimed to determine retrospectively the risks for ischaemic stroke and bleeding in the Swedish health register comprising 307,351 patients with AF. Surprisingly, adding renal failure to the established stroke risk stratification schemes (CHA2DS2 and CHA2DS2-VASc) did not improve their predictive value. However,
renal failure was an independent risk factor for intracranial bleeding. Most patients with renal failure benefited from warfarin treatment, despite their high bleeding risk. The incidence of the combined endpoint, ischaemic or haemorrhagic stroke or death, was lower among those who used warfarin than among those who did not use warfarin [adjusted hazard ratio (HR) 0.76, 95% confidence interval (CI) 0.72–0.80]. Thus, patients with both AF and renal failure appear to benefit from receiving the same treatment as other patients with AF. However, adding additional points for renal failure to the CHADS2 and CHA2DS2-VASc scores did not improve their predictive value.

The last original research article, entitled ‘Oral anticoagulation therapy after radiofrequency ablation of atrial fibrillation and the risk of thrombo-embolism and serious bleeding: long-term follow-up in nationwide cohort of Denmark’, by Deniz Karasoy et al., 10 which is discussed in a comprehensive Editorial by Paulus Kirchhof from the University of Birmingham, 11 investigated the long-term risk of thrombo-embolism and serious bleeding associated with oral anticoagulation (OAC) after radiofrequency ablation (RFA) of AF in 4050 patients of Danish administrative registries. During a median follow-up of 3.4 years, 1.8% thrombo-embolism cases were identified, with incidence rates with and without OAC of 0.56 and 0.64, respectively. Discontinuation of OAC remained unimportant in multivariable analysis. Beyond 3 months after RFA, 2.1% serious bleedings were noted. Incidence rates with and without OAC were 0.99 and 0.44, respectively. Oral anticoagulation therapy was associated with a serious bleeding risk (HR 2.05). In an age- and gender-matched cohort of 15 848 non-ablated AF patients receiving rhythm control only, thrombo-embolic risks with and without OAC were 1.34 and 2.14, respectively. The risk of ischaemic stroke according to pattern of atrial fibrillation: analysis of 6563 aspirin-treated patients in ACTIVE-A and AVERROES. Eur Heart J 2010; 31: 2369–2429.

References


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