Fresh Arrhythmia News: Suitable for Daily Use?

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It is a risk for someone not an expert in arrhythmias to value the contents of the manuscripts of this issue. Although one can safely assume that the reviewing process has filtered out the most significant manuscripts, the choice of the peers often deviates from the interest of the common reader. To reach the common reader with limited arrhythmia experience, I prefer to introduce the arrhythmia studies of this issue with potential consequences for daily patient care rather than giving an in depth description of their contribution to arrhythmia subspecialties and scientific impact.

Pacemaker Trouble Shooting

Wildschut and de Voogt show an exceptional case of ‘pacemaker syndrome’: serious haemodynamic complications occurred due to atrial over-sensing which provokes loss of atrioventricular synchrony in obstructive cardiomyopathy [1]. Both understanding of the specific pacemaker features to enable tailored device reprogramming and clinical experience with cardiomyopathy are the necessary tools to resolve this problem. Klop et al. [2] used venography to diagnose rare superior vena cava syndrome in three paced patients. The disabling pacing lead complication could be resolved with a difficult intervention including venoplasty and stenting of the occluded vessel and long-term anticoagulation. Both reports indicate three important matters: rare complications can only be resolved by large experience because exceptional events escape guidelines; secondly

arrhythmia treatment has become a true specialty; and thirdly, close cooperation between the cardiologist and allied technical professionals is indispensable. Because the daily workload of insertion and monitoring of pacemakers and implantable cardioverter-defibrillators (ICD) will further grow, exceeding the capacities of arrhythmia experts, the question raises whether we should expand the training of more (invasive) rhythm experts or of more device technicians, and/or more often apply remote technical device monitoring [3] to compensate lack of manpower and patient time.

The Defibrillator, a Proven Effect on Fatal Arrhythmias but Overused?

Van Welsenes et al. [4] reviewed the impressive technical course of Mirowski’s idea starting with epicardial, followed by years of endocardial discharges, and today with the subcutaneous approach. This review also emphasises the contribution of large clinical trials to position ICD treatment in the therapeutic field. All trials represent ‘group outcomes’ which makes decision making in the individual patient often troublesome. This applies particularly in case of preventive ICD implantation in patients with reduced systolic function without prior ventricular arrhythmias and/or congestive heart failure: in this category, only 35% of the patients experienced an appropriate shock over mid-term follow-up. The identification of a noninvasive predictor of sudden death (SD) or serious ventricular tachycardia/fibrillation (VT/VF) for *primary* prevention in patients with depressed LV function is crucial to restrict ICD implantation to indications with evidenced cost-effectiveness. A more precise ICD selection prevents

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inappropriate shocks, complications as infection and recalls for technical failures. In this journal, Bracke et al. [5] and Wilde and Simmers [6] recently pointed to the potential overuse of ICD for primary prevention and plead for adaptation of current guidelines.

Of the many clinical characteristics with predictive power, left ventricular ejection fraction until now overrules electrical phenomena as ventricular ectopy incidence, VT/VF inducibility, heart rate variability, QRS/T angle, late potentials, QRS infarct scoring, and micro T-wave alternans. Micro T-wave alternans appears to be a reliable determinant for the stratification with a 1-year positive predictive value of 9% but, more importantly, a negative predictive value of 95% [7]. In this way, categories of patients can be identified who are least likely to benefit from preventive ICD insertion. How often micro T-wave alternans examinations can be carried out in daily practice was studied retrospectively by Kraaier et al. [8] in patients selected for primary ICD treatment. This test was feasible in only 65% whereas in the remaining patients other disputable decisions were used. At this moment, predictive determinants which indicate that a patient with depressed LV function can be safely denied preventive ICD insertion are not available. Further studies should be encouraged to avoid ICD overuse.

Families in Danger of Sudden Death

Faced with SD in a young patient without clear pathology, this event strongly suggests gene mutation of proteins evoking myocardial channel dysfunction and eliciting fatal arrhythmia. These channelopathies can manifest with one or more ECG patterns, as shown by Postema et al. [9]: a single case which was followed for more than 50 years showed successively the long-QT syndrome type 3, Brugada syndrome and progressive cardiac conduction syndrome. Genetic diagnostic procedures can be simplified and speeded up when a priori is known whether gene mutations are more or less stable and can be traced back to a single ancestor (founder) or that de novo mutations emerge. Hofman et al. [10] could not detect such a founder effect in a large Dutch registry of long QT (1–3) families searching back to the eighteenth century for a familial relationship. This result suggests that probably modifying factors (e.g. environmental interaction?) arise which can partly explain variations of the genotype–phenotype relation and of pro- or anti-arrhythmic effects in the affected families. For daily practice, this outcome underscores that detailed examination of members of families with inheritable arrhythmia syndromes can only be done in close cooperation with specialised centres and that their follow-up should be

centralised in national registries to strengthen our risk stratification to avoid overuse of expensive preventive ICD treatment or life-long medication.

No New Indication for Statins

The onset of new atrial fibrillation (AF) can trouble the patient recovering from cardiac valvular and coronary surgery. In the past decades, numerous studies have been devoted to AF identifying provocative factors. Whether statins may reduce the onset of post-surgery AF because of their vasoprotective and ischaemia reductive effects in coronary surgery remains controversial. In addition, whether this also holds after exclusive valve repair or replacement, is unknown, reason for Folkerlinga et al. [11] to review the files of 272 patients with exclusive valve surgery. Data were bisected in patient categories with or without preoperative statins. AF emerged after a mean of about 4 days after surgery and statins did not diminish its onset (in both groups about 50%) or duration. Although the method of AF monitoring in this retrospective study was not precise enough, the prevalence of AF in this study was rather high compared with previous data. Anyway, the results do not warrant the prescription of statins prior to valvular heart surgery in the prevention of AF and β -blocking agents, digitalis and verapamil remain the drugs of choice in this condition.

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