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Arrhythmias and electrophysiology: The State of the Nation

For far too long in South Africa, cardiac electrophysiology and an interest in arrhythmias has been treated like an orphaned infant of a distant relative, only to be tolerated in the home of cardiology where cardiac intervention, understood mainly as "plumbing", is considered to be the favored son and heir. Yet, elsewhere, the field of arrhythmias and cardiac electrophysiology (EP) has grown exponentially, arrhythmia and heart rhythm societies have passed their coming of age and EP is a recognized and certifiable subspecialty of cardiology. It is time, therefore, that EP, the "cardiac-electrician" son, be accepted and be accorded due respect, nurturing and equal opportunity in the South African family of cardiology.

What, in this field of arrhythmias, electrophysiology and rhythm devices, do we have in South Africa? Let us review the situation. Medical professionals consist of a handful of interventional cardiac electrophysiologists, all in private practice except for one employed in the state sector/university teaching hospital, half of whom also do general cardiology and not full-time EP, together with some interested cardiologists and physicians and an even smaller number of EP cardiac clinical technologists. This is in contradistinction to the USA where already 10 years ago there were 999 electrophysiologists and the ratio of one electrophysiologist per population of around 260 000 was thought to be appropriate.[1] The situation in South Africa is worse than just a shortage of expertise: it includes some practitioners who claim to be specialist electrophysiologists but are either self-taught or not formally trained, and also a relatively larger number of rhythm device implanters, some of whom have little knowledge of EP and even less of and no interest in programming and who hold device companies at ransom, with threats of loss of business and exclusion, unethically demanding the provision of patient follow-up by the company representatives, a service which has even been fraudulently charged for by the doctor. The assessment of the local state of affairs shows that many physicians have poor knowledge or awareness of arrhythmias, ECGs and what EP can provide or that it even exists. EP training and exposure at general cardiologist level in South Africa is limited to 1.5 of the 7 or 8 cardiac training institutions only (1 full-time, the other part-time) and only recently has training become available at subspecialty level in one only.

The results of this unfortunate situation are that in the public / state sector, with only one centre capable of offering a comprehensive EP service, arrhythmias are swept under the carpet, ignored, incorrectly managed or completely overlooked. Despite researching the demand / supply of EP in South Africa, we can come up with no general statistics because in most regions there is just nothing. We can use pacemaker implant rates as some kind of surrogate: the annual implantation rate for South Africa is 40 per million, with large sections of our community as low as 10 per million, as compared to over 600 per million in parts of Europe and America.[2] There is no reason to believe that the incidence of, for example, complete heart block or supraventricular or non-ischemic ventricular arrhythmias should be significantly different or lower than in other parts of the world. What is happening to these patients? Clearly, the South African public is under-served and dying unnecessarily because of the lack of a basic EP service.

The situation in South Africa may be suboptimal, yet in Africa it is even worse. My research into availability of pacing and electrophysiology in sub-Saharan Africa, with its population of over 790 million people, reveals that

apart from less than 10 centres doing in total a few hundred pacemaker implants per year, no EP at all is being done, i.e. there is only one full-time state EP centre in sub-Saharan Africa! No wonder that, when world maps of EP related procedures, statistics and research are displayed, there are 2 continents that are blanked out: Antarctica and Africa.

What else has this resulted in, in South Africa specifically? Sadly, there is poor knowledge even about ECGs, arrhythmias and what EP can offer amongst the general population, general medical practitioners and even specialists. My experience is that even cardiology specialist certification candidates struggle with basic ECGs and arrhythmias in their examinations. Is this surprising? No, if it is not being taught at undergraduate and especially postgraduate level. (IWP Obel laments this very fact in his news article on CASSA in this issue.) This accounts for the lack of demand for an EP service and poor referral to centres where this is available. It also not surprising that where EP is dabbled in by non-trained "EP-ologists", some procedures are being done incorrectly, inconclusively and with dubious indications; and where complex rhythm devices are being implanted, there is no follow-up by the implanter and incorrect programming occurs.

So what can be done? In the first instance, this poor state of affairs needs to be acknowledged. In the long term, the remedy revolves around training at all levels, basic and specialist. Two or 3 cardiac training units have had the foresight to get some EP going. We need the heads of the other units and their medical schools to realize the need and to activate this too. Where it is a matter of posts or financial resources, government needs to be lobbied.

In the short term, the picture is not entirely of doom and gloom. In South Africa, we are fortunate to have 2 organizations, CASSA (the Cardiac Arrhythmia Society of Southern Africa) and PACE (Prevent Arrhythmic Cardiac Events), which are complementary and comprise keen, forward-looking individuals, and who, with limited resources, have taken on the challenge of making provision for South Africa's EP and arrhythmia needs. Where CASSA, which is now celebrating its 10th anniversary (see the news article by IWP Obel on the occasion of this milestone), has kept EP alive amongst cardiologists and enthusiasts, and targets the specialist and general medical professional, PACE, on the other hand, initially founded to serve as a support group for affected patients and families, has set its aims at the general public and general medical level (see the news commentary on PACE in this issue).

Awareness is the main and deliberate initial goal of both of these organizations. Each has additional aims and missions. CASSA has, by representing the subspecialty, an important role in the provision and regulation of EP. It is time for an EP accreditation process and that South Africa keep up with such developments internationally. This accreditation is important as it will provide a stamp of approval, for the reassurance of the public and for the authorization and investment by medical aid funders in EP procedures. CASSA has undertaken to be the credentialing body. (See the article by R Scott Millar on Accreditation.) With this accreditation come guidelines for training and, next up, will be certification in complex rhythm devices (implantable cardioverter defibrillators

and biventricular pacing / cardiac resynchronization therapy) to provide a standard, not so much for the implantation procedure but for the indications and especially for the follow-up. CASSA needs to guide billing in EP: it needs to be fair and uniform. (See the article by A Stanley.) CASSA is more than a regulatory body; it supports projects and research. One of these is the South African Registry of Arrhythmogenic Right Ventricular Cardiomyopathy, which is gaining momentum. (See the articles by N Hendricks and B Vezi, et al.) Awareness and education remain the foundation. This is being achieved by the CASSA roadshow of ECG and arrhythmia workshops in all provinces of South Africa and the website: www.cassa.co.za.

PACE, which was instrumental in South Africa's participation in World Heart Rhythm Day, strengthened by its affiliation with the international Arrhythmia Alliance and having been awarded an international grant, has achieved much already in the areas of awareness of rhythm disorders and management, support, counselling and setting up a network of communication and branches nationally. Aimed at the public and general medical level, it promotes awareness and knowledge about rhythm disorders, their management, sudden cardiac death or arrest and cardiopulmonary resuscitation (CPR) (website: www.paceafrica.org.za).

With the work of such dedicated organizations, with the coming on line of the cardiology training units and with their nurturing and teaching EP and providing arrhythmia service, and with the support of the SA Heart Association and its members, the state of electrophysiology in South Africa will not only grow but also finally hope to begin to meet these specific needs of our people.

Recommended inside this issue are:

The clear and frank review of drug treatment of atrial fibrillation by R Jardine,
The commentary on the place of AV node ablation in treating atrial fibrillation by IWP Obel,
The review of Long QT syndrome in South Africa based on the most advanced arrhythmia research being done in the country and with unique original findings, by P Brink and V Corfield, and
The informative article on resuscitation by W Kloeck.

References:

1. Naccarelli G, Alagona P and Kramer RK. Can electrophysiologists survive the new era of health care reform? PACE 1997;20:2008-2011.
2. Mond H, Irwin M, Morillo C and Ector H. The World survey of cardiac pacing and cardioverter defibrillators: calendar year 2001. PACE 2004;27:955-964.