

# Promoting cardiac arrhythmia care in Africa: a big challenge that begins with data

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**This editorial refers to ‘Statistics on the use of cardiac electronic devices and interventional electrophysiological procedures in Africa from 2011 to 2016: report of the Pan African Society of Cardiology (PASCAR) Cardiac Arrhythmias and Pacing Task Forces’ by A. Bonny et al., on pages 1513–1526.**

Not a lot has been written about the organization of or access to cardiac arrhythmia care in Africa. On the other hand, frequent news reports on outbreaks of infectious diseases have demonstrated the plight of many countries, not least in sub-Saharan Africa. These reports have highlighted the paucity of well-developed healthcare systems and infrastructure in dealing with medical crises. Accordingly, such impediments to the delivery of even basic medical care are also likely to hinder the availability of more complex and expensive therapeutic options for arrhythmias.

In this issue of *EP-Europace*, a report from the Pan African Society of Cardiology (PASCAR)-Cardiac Arrhythmia Working Group (CAWG) on the use of cardiac implantable electronic devices (CIEDs) and interventional electrophysiology (EP) procedures 2011–16 is presented.<sup>1</sup> While the data from this first report on this topic may have some limitations, this is nevertheless both an interesting and a very important undertaking. The PASCAR-CAWG should be lauded for this initiative that gives us a current measure of the status of cardiac arrhythmia therapy in different geographical regions of Africa. The report is based to an extent on the successful template developed by the European Heart Rhythm Association (EHRA) White Book Project, which earlier this year concluded a decade of detailed data collection of arrhythmia procedures in the European Society of Cardiology (ESC) member countries.<sup>2,3</sup> The EHRA White Book data have given insight into trends in arrhythmia care in Europe, demonstrating great disparity in CIEDs and EP procedure rates across the ESC area.

The authors of the PASCAR-CAWG report concluded that the treatment of arrhythmias in Africa during the period surveyed was far from optimal. The paper cites economic reasons, lack of facilities, and

shortage of trained physicians as the main reasons. Interestingly, some countries are only able to provide more complex care with the help of visiting physicians or by way of humanitarian missions. The outcome of this report is perhaps not entirely surprising given the recent results from the EHRA White Book.<sup>3</sup> The North African countries Algeria, Egypt, Libya, Morocco, and Tunisia are members of the ESC and have as such been invited to take part in the yearly EHRA White Book data collection. In these North African countries, the use of CIEDs and interventional EP procedures has been significantly lower than in the European ESC countries. However, according to the PASCAR-CAWG report, these countries were among the best-performing countries in Africa.

There was significant heterogeneity in both the access to care and the use of CIEDs and EP procedures across the African continent. In fact, the only sub-Saharan country able to provide a full armamentarium of arrhythmia services was South Africa. This underscores the magnitude of the challenge-facing many African countries as they set out to improve and potentially expand arrhythmia care. To an extent, this disparity reflects substantial differences in gross domestic product and healthcare expenditure among the African countries. This variability in access to arrhythmia care is also influenced by complex socioeconomic and political situations as well as huge diversity in the organization of healthcare systems across this large continent. The lack of universal health coverage in most countries is a large roadblock in the step towards providing equity in care.

The average life expectancy in Africa is significantly lower than in Europe. According to the World Health Organization statistics, the average life expectancy in Africa was 60.0 years compared with 76.8 years in Europe.<sup>4</sup> In Western societies, arrhythmias such as atrial fibrillation (AF), severe bradycardia due to sinus node or atrioventricular node dysfunction, and ventricular tachyarrhythmias tend to occur much more commonly in the elderly population. This may, in part, explain the lower implant rates and perhaps even a different need for advanced arrhythmia therapy in Africa compared with Europe. However, the higher prevalence of diseases such as rheumatic fever, which is far more common among young Africans than

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Europeans, might counter this to an extent. Among the complications of rheumatic fever are valvular heart disease, not least mitral valve stenosis, heart failure and various tachy- and bradyarrhythmias. Although the Atherosclerosis Risk in the Communities (ARIC) study reported a lower prevalence of AF in people of African descent compared with those of European ancestry,<sup>5</sup> AF is becoming increasingly common in sub-Saharan Africa.<sup>6</sup> Between 1990 and 2010, AF represented the largest relative increase in cardiovascular disease burden in sub-Saharan Africa going from 0.7% to 1%,<sup>6</sup> whereas the rates of other cardiovascular diseases such as ischaemic heart disease increased at a much lower rate over the same period.

We concur with the conclusion of the PASCAR-CAWG report that there appears to be a clear need to promote contemporary arrhythmia care in Africa and to address the disparity that exists between different regions. This will be a huge and multi-faceted challenge. In Europe, the White Book data have been used successfully to raise awareness about inequalities in the treatment of arrhythmias, not only within the cardiology community but also among healthcare administrators, policymakers, and other stakeholders. These steps now also need to be taken in Africa, using data from the PASCAR-CAWG report, with an initial focus on developing widespread basic arrhythmia services. Given the disparities of care already in place, it is obvious that the requirements for improvement in various regions will differ substantially. One might also question how realistic it is to promote arrhythmia care in those areas where the healthcare infrastructure is weak and even primary care is poorly organized and underfunded.

The PASCAR-CAWG report does not provide any information on the use of medications for tachyarrhythmias or anticoagulation therapy for AF. Given the high incidence of thromboembolic events among patients with rheumatic heart disease, the use of anticoagulation for AF may be especially prudent.<sup>7</sup> The uses of proven and relatively simple therapeutic options such as beta-blocker therapy, which requires neither specific facilities nor technical expertise, form the starting point for treatment of tachyarrhythmias in those areas where resources are scarce. Ideally, basic arrhythmia services would also include procedures such as pacemaker implantations, implantable cardioverter defibrillators for secondary prevention, and simple ablations, at the minimum. This will require significant investment in facilities and training of physicians in some areas. Perhaps, the development of arrhythmia services could initially congregate in a few selected centres in sub-Saharan Africa, which could eventually also function as training sites for arrhythmia specialists.

The development of specially funded programmes to support the advancement of arrhythmia care might be considered. Such

initiatives, in many cases including support and donations from both public institutions and private philanthropic foundations, have been proven to be useful in other areas of medical care such as in promoting HIV testing and in providing anti-retroviral drugs at a reduced price. Medical device companies could also have a key role to play in providing more affordable CIEDs and implant support. In addition, the notion of reusing CIEDs, as suggested in the PASCAR-CAWG report, could be an interesting initiative to reduce the cost of arrhythmia care.

In summary, the PASCAR-CAWG report is the first step in an ambitious goal of trying to reduce the disparity of arrhythmia care in Africa. The process of promoting the CIED use and EP procedures in Africa will likely be a complex and challenging undertaking. It would ideally include the creation of basic arrhythmia services initially and then selectively moving to more comprehensive care in dedicated centres throughout the continent, especially in sub-Saharan Africa. This requires increased awareness of the public, lobbying of various stakeholders, development of specific arrhythmia programmes, and of course increased financial allocation and support for arrhythmia care. The importance of having data in the beginning of such a journey should not be underestimated.

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A cardiac arrhythmia is any abnormal heart rate or rhythm. In normal adults, the heart beats regularly at a rate of 60 to 100 times per minute. And the pulse—

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Cardiac Arrhythmias. What Is It? Published: February, 2019. A cardiac arrhythmia is any abnormal heart rate or rhythm. In normal adults, the heart beats regularly at a rate of 60 to 100 times per minute. And the pulse (felt at the wrist, neck or elsewhere) matches the contractions of the heart's two powerful lower chambers, called the ventricles.

Cardiac Arrhythmias in Africa. Epidemiology, Management Challenges, and Perspectives. Aim© Bonny, Marcus Ngantcha, Wihan Scholtz, Ashley Chin, George Nel, Jean-Baptiste Anzouan-Kacou, Kamilu M. Karaye, Albertino Damasceno and Thomas C. Crawford. Author + information.

Cardiovascular diseases, including cardiac arrhythmias, are a major public health problem in low- and middle-income countries, to which almost all SSA countries belong.

SCD data from most African countries are generally single-center retrospective registries rather than prospective population-based studies (Table 1). The first population-based SCD study in SSA (20) showed an incidence similar to China (21) and higher than in Ireland (22).