



Atrial fibrillation in sub-Saharan Africa: The knowns and unknowns?

Dominik Linz^{a,*}, Prashanthan Sanders^a, Bradley Pitman^a, Dobromir Dobrev^b, Dennis H. Lau^a

^a Centre for Heart Rhythm Disorders, South Australian Health and Medical Research Institute (SAHMRI), University of Adelaide and Royal Adelaide Hospital, Adelaide, Australia

^b Institute of Pharmacology, West German Heart and Vascular Center, University Duisburg-Essen, Essen, Germany

Atrial fibrillation (AF) is the most common arrhythmia and is associated with increased risk of heart failure and stroke. Current treatment of AF with antiarrhythmic drugs has limited efficacy and substantial toxicity, with prevention of stroke with anticoagulants being very challenging in many AF populations [1,2]. The Global Burden of Disease (GBD) 2010 study provided evidence of progressive increase in worldwide AF burden with significant public health implications [3]. The rising AF burden can be attributed to the increase in chronic cardiovascular risk factors responsible for the development of AF substrate and disease progression [4,5]. Additionally, it is also possible that the presence of several concomitant cardiac risk factors in an individual can compound the degree of adverse atrial remodeling and risk of developing AF [6]. The increased prevalence of AF and cardiovascular risk factors is not confined to high-income countries in the Western world. In Sub-Saharan Africa, the prevalence of AF was estimated at 659.8 and 438.1 per 100,000 population for men and women respectively, representing a growth of 3.4% between 1990 and 2010 [3]. However, the GBD study also highlighted the low availability of data from sub-Saharan Africa and the crucial need for better estimates through targeted population surveillance studies [3]. Further, many parts of sub-Saharan Africa are undergoing epidemiological transitions with gradual adoption of Western lifestyle leading to development of new cardiovascular risk factors such as hypertension, dyslipidaemia, diabetes and obesity [7]. It is in this context that the work by Tegene et al. in this issue of the Journal, on the prevalence, risk factors and anticoagulant requirements of AF in an Ethiopian community of adults ≥ 40 years of age is welcomed [8].

In this community-based cross-sectional study of 634 adults, the authors collected data during a single household visit by trained general practitioners and nurses performing cardiovascular health examinations including a 12-lead electrocardiogram to estimate AF prevalence. A standardized questionnaire was used to collect information on medical history, lifestyle and use of medications. The overall prevalence of AF in this community sampling was surprisingly high at 4.3% and clearly above the estimated AF prevalence of around 0.5% from the GBD 2010 study [3]. Yet, of the risk factors reported in this study, the prevalence of the usual causes of AF such as hypertension, overweight/obesity, diabetes and ischemic heart disease were relatively low at 38%, 33%, 12%, and 13%, respectively. Perhaps, the ‘true normal’ body mass index in

the African population is lower than 25 kg/m² and the impact of weight gain on AF development is underestimated. Additionally, 51% of this cohort were deemed to be at high risk for obstructive sleep apnea, but data from formal sleep studies to confirm the presence and diagnosis of relevant sleep-disordered breathing were not available. Furthermore, it remains unclear how many of the current alcohol drinkers were drinking excessively, a factor known to lead to heightened risk of developing AF [9]. Notably, crucial data on the prevalence of heart failure, rheumatic heart disease and valvular heart disease were not available, likely because of the lack of echocardiography or other imaging modalities. Consistent with experience in developed countries, hypertension, obesity and obstructive sleep apnea have emerged as important AF risk factors in the sub-Saharan setting.

This community-based cross-sectional study is the first to demonstrate a surprisingly high prevalence of AF in Ethiopia, albeit from a small number of individuals that may not be representative of the population at large. Of the 27 individuals found with AF, it is unclear how many with paroxysmal AF would have been missed as the diagnosis was obtained via a single 12-lead electrocardiogram. Interestingly, 19 of the 27 AF individuals were at high risk of stroke although the actual rate of anticoagulation use was not disclosed. Nevertheless, it is plausible that the higher than expected AF prevalence resulted from poorly managed or untreated risk factors. Indeed, low knowledge level and awareness towards cardiovascular disease risk is known to be associated with low literacy level and rural residency in sub-Saharan Africa, consistent with the Jimma population in this study [10]. Further epidemiological data is urgently needed to fill in the data gap on AF in Ethiopia and sub-Saharan Africa including its impact on heart failure, stroke, morbidity, and mortality. Of note, given the high prevalence of rheumatic heart disease in sub-Saharan Africa, delineation of AF related to valvular heart disease is also of vital importance.

Potentially, aggressive risk factor and lifestyle modification may help to control AF without requiring expensive pharmacological therapy or invasive catheter ablation interventions, that are often unavailable in low resource sub-Saharan countries [11]. However, the best approach for community-based interventions to control non-communicable risk factors remains unclear. Data such as these presented by Tegene et al. provide useful information for developing targeted interventions or public health policy to curtail the growing epidemic of AF [8]. Particularly, in a country like Ethiopia, where one medical doctor provides service for about 28,867 people, an integrated care approach lead by allied health specialists may prove to be a valuable approach towards successful and cost-effective AF care [12].

* Corresponding author at: Centre for Heart Rhythm Disorders, Department of Cardiology, Royal Adelaide Hospital, Adelaide 5000, Australia.

E-mail address: Dominik.Linz@adelaide.edu.au (D. Linz).

Conflict of interest

None (all authors).

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