

Different strokes for different folks

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Atrial fibrillation (AF) remains the most common arrhythmia since William Harvey's observation of fibrillating auricles in open chest animal models in 1628. Willem Einthoven first documented ECG tracing of AF in 1906. Fast forward several hundred years since its first observation, AF remains a mystery from its pathogenesis and sustenance to treatment options in the 21st century.

AF is known to confer incremental risk of mortality in population-based studies and poses a substantial morbidity burden in terms of stroke and heart failure.¹ Yet, a one-size approach does not fit all in AF treatment and individualised management with shared decision-making is encouraged in most clinical guidelines.² In fact, even the incidence and prevalence of the same arrhythmia differ between populations and communities. These observations further intrigue and complicate how genetics and environments, together with known risk factors and modifiers, intertwine to give rise to, perpetuate and sustain AF. Recent publications have shown racial and sex differences in mortality for AF in different ethnic groups.³ However, most studies were limited in the West, mainly comparing white versus non-white populations.

Regionally, there are interesting differences observed in the prevalence, clinical correlates and outcomes of AF in heart failure patients across Asia.⁴ A previous community-based study in Singapore showed a relatively low AF prevalence rate in the Chinese community over the age of 55 years old.⁵ In this issue of the *Annals*, Tan et al. had taken further steps to illustrate the interesting differences in the mortality and incidences in multiethnic Singapore.⁶ Albeit the study was retrospective in nature with its limitations and potential unknown confounding variables, the authors ought to be commended on several pertinent observations. Firstly, the study was consistent with the huge prospective observational study, Global Anticoagulant Registry in the Field (GARFIELD-AF)⁷ and demonstrated incremental mortality among newly diagnosed AF patients belonging to the 3 main ethnic groups (Chinese, Malays and Indians) in Singapore.

Additionally, increased prevalence of cardiovascular risk factors did not correspond to incremental incidence of AF across the 3 ethnic groups, raising questions of genetic protective effects of variable and questionable significance. The authors also acknowledged that the higher mortality rates observed in their study could be due to the overwhelming majority of newly diagnosed AF reported from hospital admissions compared to community, outpatient settings. Intuitively, this group would be sicker, often with underlying systemic illnesses and multiple comorbidities, thus attributing to the higher risk of mortality. Asymptomatic AF patients in the community, whose first presentation may be a result of associated complications at a later stage, could undermine the true incidence and prevalence. Thus, the conundrum remains on which population groups benefit from cost-effective screening and treatment. Recent published studies attempted to answer this question and more ongoing research will hopefully provide clearer guidance.^{8,9}

More than half of the deaths in this study were attributed to non-cardiovascular causes and independent of cardiovascular risk factors. This resurrects the notion of whether AF is a risk factor or risk marker. Given the heterogeneity of ethnicity but living in a shared environment manifesting different mortality outcomes, it may well be that the development of AF indicates the presence and development of underlying comorbidities such as sleep apnoea, obesity, alcohol dependence and lung disease in addition to known cardiovascular risk factors. Timely and appropriate management of such comorbidities, which may create an underlying myocardial substrate for the initiation and sustenance of AF, has been convincingly shown to reduce the burden and improve overall well-being and mortality.

Lastly, the authors advocated an aggressive management of AF and this likely involves early rhythm-control in appropriate patients. The Early treatment of Atrial Fibrillation for Stroke prevention Trial (EAST-AFNET 4) study showed that early rhythm-control for this group of patients was associated

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with a lower risk of adverse cardiovascular outcomes.¹⁰ Locally, increasing awareness of AF with its associated adverse potential sequelae among the population at increased risk is important. Despite the same arrhythmia, but different prevalence, incidence, or hard end points in a heterogeneous ethnic population in Singapore, the same aggressiveness and access to care should be adopted in the approach towards early treatment and management for favourable long-term outcomes in AF.

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