Rising prevalence of atrial fibrillation in the elderly population: new challenges of geriatric cardiology

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This editorial refers to ‘Prevalence of atrial fibrillation in the Italian elderly population and projections from 2020 to 2060 for Italy and the European Union: the FAI Project’, by A. Di Carlo et al., on pages 1468–1475.

In the last two decades, a rapid upward course of atrial fibrillation (AF) prevalence and incidence is occurring.¹² Current projections are mainly from North America and projections for European populations are limited to data from Iceland,³ Germany,⁴ and the Netherlands.⁵ In this issue of Europace, Di Carlo et al.⁶ aimed to estimate the prevalence of AF in the elderly Italian population, and generate projections on the number of elderly patients with AF in Italy and the European Union over the next four decades.

In 4528 participants from three Italian primary-care practice cohorts age- and sex-specific AF prevalence estimates for 2016 were obtained. The practices covered urban and rural areas, different socio-economic contexts and were located in Northern, Central, and Southern Italy. Population projections for Europe by sex and 5-year age groups, using a 5-year time interval, were obtained from Eurostat, the European Union statistical office. Prevalence data were achieved through systematic or opportunistic screening if participants did not respond to systematic screening, followed by clinical and 12-lead electrocardiogram confirmation. Older age and female sex were covariates that increased the risk of non-participation.

The Italian AF prevalence was estimated at 7.3% (6.6% from systematic plus 0.7% from opportunistic screening); 8.6% in men and 6.2% in women. Multivariate analyses showed independent associations for advancing age, male sex, heart failure, and previous stroke with presence of AF. The number of Italian patients having AF in 2016 was estimated at ~1 081 000 and is projected to increase to ~1 892 000 in 2060, reaching a total prevalence of 10.0%. The number of European patients having AF in 2016 was estimated at ~7 617 000 and is projected to increase to ~14 401 000 in 2060. By that time AF in patients aged >80 years will make up >65% of all AF cases.

The authors are to be congratulated on their contribution to the current literature. Their results are in line with predictions of Krijthe et al.⁵ who, using data from the prospective community-based Rotterdam Study, also predict that the number of elderly adults with AF in the European Union will increase tremendously by the year 2060 (Figure 1A). Major strengths of the current study include the methodological approach with systematic and opportunistic screening, as well as diagnostic confirmation of AF. Risk factors may vary between countries and this can influence estimates of European prevalence. This first study focusing on a South European population will improve precision of estimates on the future burden of AF in Europe. Nonetheless, the relatively small sample size of 4528 participants yielding 331 AF cases is a limitation. Additionally, the authors assumed that AF prevalence remains stable, whereas several studies suggest that prevalence may further rise over time.⁷ Based on data from the Framingham Heart Study and the Rotterdam Study, the risk of AF starting from 40 years was estimated to be ~1 in 4.⁸ However, more recent studies, including the European BiomarCaRE consortium, estimate that the lifetime risk of AF in individuals from European ancestry has increased to ~1 in 3 by age 90 years.¹

The increasing incidence, prevalence, and shift in distribution across age groups, will impose a huge burden on health care provision and expenditure. Based on data from Medicare patients (average age 79.5 ± 7.3 years), the cumulative incidence of events 5 years after the diagnosis of incident AF is high in these old patients: 13.7% chance of heart failure, 7.1% chance of stroke, a 5.7% chance of gastrointestinal bleeding, and a 3.9% chance of myocardial infarction (Figure 1B).⁸ In addition, data show that the number of primary and secondary AF-related hospitalizations continues to increase, annually people with AF are twice as likely to be hospitalized as age- and sex-matched referents, posing a substantial and growing economic burden on.
health care systems. Furthermore, AF is associated with an increased risk of cognitive impairment and dementia, and a higher risk of falls. Death rates in older patients with AF are higher than age-matched referents without the arrhythmia (men 75–84 years, respectively with and without AF: 1 year 45% vs. 10%, 5 year 75% vs. 44%; women 75–84 years, respectively with and without AF: 1 year 37% vs. 6%, 5 year 66% vs. 28%). These rates seem to remain static in older patients. In patients aged >75 years mortality rates remain similar despite improved pharmacological and interventional treatment options, while in patients aged 55–74 years a reduction in mortality is observed.

**Figure 1** (A) Expected number (millions) of elderly patients with AF in the European Union in the coming four decades. Estimates are for the age categories >65 years (red), >75 years (green), and >80 years (blue). (B) Cumulative incidence (%) of events in the 5 years after diagnosis of incident AF in Medicare patients (average age 79.5 ± 7.3 years). Reprinted from Piccini et al. AF, atrial fibrillation.

**Implications for the future**

The increasing elderly AF population has a high prevalence of multimorbidity, which is strongly associated with advancing age. By age 65 most are multimorbid. This is problematic since AF patients with ≥4 comorbidities have a 6-fold increased risk of mortality compared to patients without any health conditions. These trends are worrisome, especially since effective primary AF prevention strategies are lacking. Currently, efforts are focused on control and treatment of cardiovascular risk factors and comorbidities as targeted risk factor modifications may prevent AF recurrence and improve symptoms.
but so far an effect on survival in patients with AF has not been robustly proven. The problem of multimorbidity should be prioritized and screening for underlying conditions should be implemented in all patients presenting with AF since early detection and treatment may decrease AF-related morbidity and reduce AF-related hospitalizations and mortality. For the oldest, multimorbid, frail AF patients, a more conservative approach should be sought. This requires a multidisciplinary approach to provide personalized geriatric care with age-relevant outcome goals like functioning independently, optimal quality of life, and preventing unnecessary hospitalizations. This should incorporate prevention of cognitive and functional impairment, and optimal geriatric therapy of comorbidities (Figure 2).

Conflict of interest: none declared.

References

Figure 2 Illustrates several complicating factors of AF in the elderly population, and the need for a multidisciplinary approach to provide personalized geriatric cardiac care with age-relevant goals.8,10 AF, atrial fibrillation.