Reader's Comments: Beyond Atrial Fibrillation Patterns as Contributors to Risk of Thromboembolism

I read with great interest the paper by Zhang et al[1] in which the authors reported that the incidence of stroke and systemic embolism and overall mortality were lower in paroxysmal atrial fibrillation (AF) than in persistent or permanent AF while annualized major bleeding rates were similar across AF types. In truth, this is not a new observation. Ganesan et al[2] reported essentially the same findings in 2016, as have others.[3] Importantly, Zhang et al[1] noted that both the CHADS2 and CHA2DS2-VASc risk scoring systems do not consider the type of AF, which may be a significant limitation in their utility if AF type is truly important in conferring risk, and that AF burden (the percent of time one is in AF), which correlates positively with the stroke risk in un-anticoagulated patients, is lower in paroxysmal AF than in non-paroxysmal forms. Importantly, AF burden, beyond AF pattern, is also not considered in the CHADS2 and CHA2DS2-VASc risk scoring systems. Zhang et al[1] stated that "it remains unknown whether paroxysmal AF is associated with a lower risk of thromboembolism due to sharing of" [a lesser degree] of "underlying mechanisms, such as fibrosis and atrial dilatation, or whether the shorter time in AF is directly responsible." I would strongly suggest it is both. Both the total burden of AF and its effect on inducing atrial endocardial, fibrotic, and mechanical abnormalities plus the magnitude of atrial pathophysiology consequent to any underlying co-morbidities must act synergistically to result in overall thromboembolic risk.[3,4] It has long been recognized that lone AF carries extremely little risk of thromboembolic; that specific co-morbidities, including older age, hypertension, diabetes, and vascular disease can result in stroke in the absence of AF; while the highest risk is in patients with AF plus risk-contributing co-morbidities. Thus, AF alone cannot be the sole factor, nor can just underlying disorders. Moreover, the synergism cannot simply be dichotomous − AF present/absent, co-morbid disorders present/absent. The synergistic risk must have magnitude, depending on the number and severity of the associated disorders and the amount of time one is in AF. I believe this concept has not yet been adequately considered and that clinical trials addressing this point are warranted and that Zhang et al might want to consider these points if they analyze their data further.

Disclosures

During the last 3 years, Dr. Reiffel has been an investigator and consultant for Medtronic, Janssen, Gilead, and Sanofi; a consultant for Portola, Acesion, InCardia Therapeutics; and a member of speaker's bureaus for Janssen and Boehringer Ingelheim.

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Heterogeneity of Periodic Limb Movements Associated With Central Sleep Apnea in Heart Failure Patients

We read with great interest the paper published in the American Journal of Cardiology[1] concerning "The effect of Adaptive Servo-Ventilation on Periodic Limb Movements in Sleep in patients with Heart Failure." Jang and his co-authors concluded that Periodic Limb Movements in Sleep (PLMS) are more frequent in central sleep apnea (CSA) patients with Heart Failure (HF) than those without. Furthermore, a paradoxical increase in PLMS is observed in HF patients treated with Adaptive Servo-Ventilation (ASV) despite reduction of breathing events. They attributed, this higher rate of PLMS to presence of HF and its severity. However, some demographics and clinical characteristics known as associated with PLMS were significantly more frequent in the group of HF patients, than the group without. In fact, PLMS within the German population-based cohort performed on 1,107 subjects and the Switzerland one performed on 2,162 subjects established that age, male gender, current smoking, diabetes and renal failure showed a positive association with PLMS index >15/hour.[2,3] Nevertheless the high prevalence of PLMS in HF is well established and represent a prognosis factor. The main problem in patients presenting sleep apnea is when to score PLMS. In this study, a limb movement was not scored if it occurred during a period from 0.5 second preceding an apnea, hypopnea, or respiratory effort-related arousal to 0.5 second following, according to the WASM/IRLSSG task force guidelines.[4] This scoring criteria specify that PLMS should only be scored if they are spontaneous and excluded when associated with respiratory event. In sleep apnea, leg movement can be due to respiratory related arousals and owing to the periodic nature of cheyne-stokes respiration event they imitate PLMS. Otherwise PLMS can participate in cheyne-stokes respiration by inducing sleep disruption and hyperventilation. In obstructive sleep apnea (OSA), arousals occur, usually at the end of the respiratory events, however, in CSA the arousals can occur several breaths after any termination in HF. Taryn S and collaborator studied the differential timing of arousals in sleep apnea in patients with HF and showed that apnea-to-arousal time with the CSA group was much longer than in the OSA group with a mean latency of 8.0 seconds.[5] Likewise, Manconi et al showed that leg movement activity in sleep apnea occurred mostly over an interval of −2.0 to +10.25 seconds around the respiratory event.[6] The authors attempted to compare their