Canadian Journal of Cardiology 35 (2019) 145–146

Editorial

Physician Estimation of Thrombotic and Bleeding Risks in Atrial Fibrillation: Let's Talk About Sex

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See article by Lee et al, pages 160–168 of this issue.

Atrial fibrillation (AF) is the most common cardiac arrhythmia. AF represents a major risk factor for stroke and systemic thromboembolism and requires thromboprophylaxis after assessment of the risks versus benefits.[1] However, AF often coexists with multiple comorbidities that not only have implications for development of the arrhythmia but also contribute to complications associated with AF.[2,3] Indeed, these comorbidities have a complex interplay between thrombosis and bleeding risks that make risk assessment challenging and sometimes open to subjectivity. Several objective clinical risk-stratification tools have been developed to aid decision-making and are recommended in contemporary guidelines.[1,4,5] Even then, risk assessment is not a "one-off" static process, but a dynamic one given that a change in risk factor profile is a strong predictor of adverse outcomes.[6]

In the current issue of *Canadian Journal of Cardiology*, Lee et al.[7] report on the agreement between physician-estimated and calculated score estimates for stroke and bleeding risks in AF. Data on 1035 physicians (133 female, 902 male) and 10,927 patients (4567 female and 6360 male) were pooled from 2 Canadian national primary care physician audit databases. They found that male physicians overestimated stroke risk in male patients and underestimated risk in female patients, whereas female physicians estimated stroke risk well in female patients but underestimated risk in male patients. Bleeding risk was underestimated by physicians regardless of patient or physician sex, with overall poor agreement between empirical scores and physician estimates.

Findings from this study are thought-provoking and consistent with previous reports that suggest a lack of concordance between empirical risk scores and physician estimates of stroke and bleeding risks.[8,9] The significant underestimation of bleeding risk by physicians compared with empirical scores is potentially of concern, especially because this observation was universal regardless of physician or patient gender. It may also reflect a lack of appreciation for important bleeding risk factors and therefore the risk of missing potentially modifiable ones.

The obvious question that arises is whether physicians are truly poor at estimating risk or whether empirical scores, with their modest predictive capability at best, simply underperform by failing to account for subtle nuances in the clinical setting. To that end, it is important to acknowledge that scoring tools are reductionist and often simplified to allow ease of use in daily clinical practice.[10] Indeed, although different components of common risk scores, such as the **C**ongestive Heart Failure, **H**ypertension, **A**ge $\geq$ 75 Years, **D**iabetes Mellitus, **S**troke, **V**ascular Disease, **A**ge 65 to 74 Years, **S**ex **C**ategory (CHA_2DS_2-VASc) score, may appear to contribute equally toward stroke risk, in reality they do not.[11,12] Also, physician estimation can be influenced by prior experiences and subtle clinical features not captured by scoring tools.[13]

Intriguingly, Lee et al[7] found patient and physician sex was an attributable factor to explain some of the observed discrepancy. Female physicians had better overall agreement of risk estimates compared with their male colleagues. Reasons for the sex differences in risk estimates between male and female physicians are unclear but likely to be multifactorial. One possible explanation is that patients may opt for physicians according to their sex, and this is suggested by differences between baseline characteristics of patients treated by male and female physicians. It is also possible that the likely younger demographic of female physicians and their higher likelihood of adherence to published guidelines may have played a role.

A few limitations to the study should be highlighted. Potentially significant selection bias could have occurred because the proportion of female to male physicians was low, and each physician was allowed to enroll 10 patients at his or her own discretion. Furthermore, it is unclear why the authors chose different definitions for "low" physician-estimated stroke and bleeding risks between the 2 databases used.

In summary, the important study by Lee et al.[7] suggests that agreement between empirical and physician estimates of

Received for publication December 6, 2018. Accepted December 7, 2018.

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See page 146 for disclosure information.

https://doi.org/10.1016/j.cjca.2018.12.011

bleeding and stroke risks in AF may be influenced by patient and physician sex. Sex-related differences in arrhythmia management have been highlighted, but the sex differences in physician-estimated risk assessments add an additional dimension to the decision-making process.

Disclosures

Dr Lip is a consultant for Bayer/Janssen, BMS/Pfizer, Medtronic, Boehringer Ingelheim, Novartis, Verseon, and Daiichi-Sankyo, and a speaker for Bayer, BMS/Pfizer, Medtronic, Boehringer Ingelheim, and Daiichi-Sankyo; no fees are directly received personally. Dr Gupta is a speaker for Bayer, BMS/Pfizer, Boehringer Ingelheim, Daiichi-Sankyo, Medtronic, Biosense Webster, and Boston Scientific; is a proctor for Abbott; and reports research grants from Medtronic, Biosense Webster, and Boston Scientific.

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