Net Thromboembolic vs. Bleeding Risk Stratification: A Step Forward for Personalized and Tailored Treatment of Atrial Fibrillation.

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Hijazi and colleagues' ABC score yields promise as a new standard for assessming bleeding risk in patients with atrial fibrillation (AF) and supports the role of biomarkers in the field [1]. Unfortunately, it also highlights the overlap of some variables (GDF-15, Troponin T, and age) which not only associate with bleeding, but are also known risk factors for stroke and systemic embolism [2, 3]. New thromboembolic risk stratification schemes like ATRIA [4], R₂CHADS₂ [5] and ABC-stroke [6] have been proposed, but it is clear the time has come for a new paradigm of integrated risk stratification for AF patients. Using two separate risk classifications to assess the two ends of a continuous spectrum (thrombosis vs. bleeding) seems artificial and provides unclear guidance in the frequent setting of increased bleeding and thrombotic risk. We propose that a combined risk score assessing thromboembolic risk and simultaneously adjusting/balancing for bleeding risk, providing us with a net risk/benefit estimation may be the way to achieve a personalized treatment in this population. This could potentially allow tailoring of anticoagulation according to each patient's net risk, possibly allowing higher intensity anticoagulation regimens for patients with high thromboembolic risk but low bleeding risk, and lower intensity anticoagulation in those with low to moderate thromboembolic risk and higher bleeding tendency. Integrating and merging the different risk assessment tools (bleeding and thromboembolic risk scores), including variables

signalling only higher thromboembolic risk or adjusting for thrombotic risk factors to the bleeding tendency may be the way forward. In the future strucutural information when they are validated (eg. Left atrial appendage morphology/velocities), as well as biomarkers could also be incorporated to refine the scoring system.

References

1. Hijazi Z, Oldgren J, Lindbäck J, Alexander JH, Connolly SJ, Eikelboom JW, Ezekowitz MD, Held C, Hylek EM, Lopes RD, Siegbahn A, Yusuf S, Granger CB, Wallentin L; ARISTOTLE and RE-LY Investigators. The novel biomarker-based ABC (age, biomarkers, clinical history)-bleeding risk score for patients with atrial fibrillation: a derivation and validation study. Lancet. 2016 [Epub ahead of print]

2. Wallentin L, Hijazi Z, Andersson U, Alexander JH, De Caterina R, Hanna M, Horowitz JD, Hylek EM, Lopes RD, Asberg S, Granger CB, Siegbahn A; ARISTOTLE Investigators. Growth differentiation factor 15, a marker of oxidative stress and inflammation, for risk assessment in patients with atrial fibrillation: insights from the Apixaban for Reduction in Stroke and Other Thromboembolic Events in Atrial Fibrillation (ARISTOTLE) trial. Circulation. 2014 Nov 18;130(21):1847-58.

3. Hijazi Z, Wallentin L, Siegbahn A, Andersson U, Alexander JH, Atar D, Gersh BJ, Hanna M, Harjola VP, Horowitz JD, Husted S, Hylek EM, Lopes RD, McMurray JJ, Granger CB; ARISTOTLE Investigators. High-sensitivity troponin T and risk stratification in patients with atrial fibrillation during treatment with apixaban or warfarin. J Am Coll Cardiol. 2014;63(1):52-61. 4. van den Ham HA, Klungel OH, Singer DE, Leufkens HG, van Staa TP. Comparative Performance of ATRIA, CHADS2, and CHA2DS2-VASc Risk Scores Predicting Stroke in Patients With Atrial Fibrillation: Results From a National Primary Care Database. J Am Coll Cardiol. 2015;66(17):1851-9.

5. Piccini JP, Stevens SR, Chang Y, Singer DE, Lokhnygina Y, Go AS, Patel MR, Mahaffey KW, Halperin JL, Breithardt G, Hankey GJ, Hacke W, Becker RC, Nessel CC, Fox KA, Califf RM; ROCKET AF Steering Committee and Investigators. Renal dysfunction as a predictor of stroke and systemic embolism in patients with nonvalvular atrial fibrillation: validation of the R(2)CHADS(2) index in the ROCKET AF (Rivaroxaban Once-daily, oral, direct factor Xa inhibition Compared with vitamin K antagonism for prevention of stroke and Embolism Trial in Atrial Fibrillation) and ATRIA (AnTicoagulation and Risk factors In Atrial fibrillation) study cohorts. Circulation. 2013;127(2):224-32

6. Hijazi Z, Lindbäck J, Alexander JH, Hanna M, Held C, Hylek EM, Lopes RD, Oldgren J, Siegbahn A, Stewart RA, White HD, Granger CB, Wallentin L; ARISTOTLE and STABILITY Investigators. The ABC (age, biomarkers, clinical history) stroke risk score: a biomarker-based risk score for predicting stroke in atrial fibrillation. Eur Heart J. 2016;37(20):1582-90.