

New app improves treatment of atrial fibrillation

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Atrial fibrillation increases the risk of stroke. Treatment with oral anticoagulation reduces this risk but instead increases the risk of bleeding. Today, a new blood test based tool enabling better and more individualized stroke prevention treatment is presented at a congress in Chicago, and simultaneously published in the top-ranked medical journal *The Lancet*.

'We present results where we developed and thoroughly evaluated a new and simple concept for evaluation of risk and guidance of [treatment decisions](#) in [patients](#) with atrial fibrillation. The biomarker-based tool will allow personalized treatment to prevent strokes with the least risk of bleeding complications,' says Doctor Ziad Hijazi, cardiologist and investigator, who presents the results in collaboration with his colleagues Jonas Oldgren and Lars Wallentin, from the Uppsala Clinical Research Center at Uppsala University in Uppsala, Sweden.

Atrial fibrillation is a common arrhythmia affecting approximately 3% of the adult population. The occurrence increases by age. In an aging population, the condition is an important public health issue and socioeconomic burden on society. Atrial fibrillation is also a major risk factor for stroke but the risk is variable between different patients and also in the same patient over time. Stroke prevention treatment with [oral anticoagulation](#) decreases the risk of stroke but confers an increased risk of bleeding.

Currently, the evaluation of the risk of stroke and bleeding is based

solely on clinical characteristics, which may be associated with a considerable uncertainty. In addition, it is difficult to separate the patients' risks for stroke and bleeding during anticoagulant treatment. In recent years, the Uppsala group has demonstrated that blood biomarkers contain more prognostic information than the currently used clinical characteristics concerning both bleeding and stroke during anticoagulation treatment in patients with atrial fibrillation. The results presented today show that the combination of the information from several biomarkers and a small amount of clinical data substantially improves the prognostication of the risk of stroke and bleeding in the individual patients. The use of biomarkers also makes the new risk scores dynamic with an opportunity to reflect both improvement and deterioration in the patient's cardiovascular condition over time, which changes the risk of complications.

All these new findings are presented in the new article in *The Lancet* and in a recent manuscript in the *European Heart Journal*. They are also presented today at the American College of Cardiology Congress in Chicago. These reports document the development, internal and external validation and calibration of the biomarker-based tools 'ABC risk score' (Age, Biomarkers, Clinical history of stroke/bleeding) for prognostication of stroke and bleeding which is now also available as a web-based instrument. The results are based on the development of the instruments in one large study of 14 537 patients with atrial fibrillation randomized to two different anticoagulant medication in the ARISTOTLE-trial and their verification in another similar material of 8152 patients with atrial fibrillation randomized to three different treatment alternatives in the RE-LY trial. In both studies, blood plasma was obtained from the majority of patients at the start of the study. The levels of the biomarkers were later measured at Uppsala Clinical Research Center. The biomarkers included in the ABC-risk scores are; haemoglobin, NT-proBNP, troponin and GDF-15 or cystatin C, all of which already are or shortly will be (GDF-15) available for routine use.

'The option to calculate the ABC-risk scores is already available today as an internet based tool and will shortly also be available as an app to facilitate its implementation in routine health care,' says Jonas Oldgren, head of the Uppsala Clinical Research Center.

'We think that biomarker-based risk evaluation in the near future will be the preferred tool for decision support at the selection of the optimal [stroke](#) prevention treatment for the individual patient with [atrial fibrillation](#),' says Professor Lars Wallentin, who has led the research and development project for many years.

More information: Hijazi Z, Oldgren J, Lindbäck J, Alexander JH, Connolly SJ, Eikelboom JW, Ezekowitz MD, Held C, M.D, Hylek EM, Lopes RD, Siegbahn A, Yusuf S, Granger CB, Wallentin L, on behalf of the ARISTOTLE and RE-LY Investigators. A Novel Biomarker-Based Bleeding Score for Patients with Atrial Fibrillation - The ABC (Age, Biomarkers, Clinical history) Risk Score. *Lancet*. 2016 April 4. [Epub ahead of print]

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 Feb 25. pii: ehw054. [Epub ahead of print]

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