Medical Xpress

Biomarkers may predict future sinus rhythm in patients with atrial fibrillation

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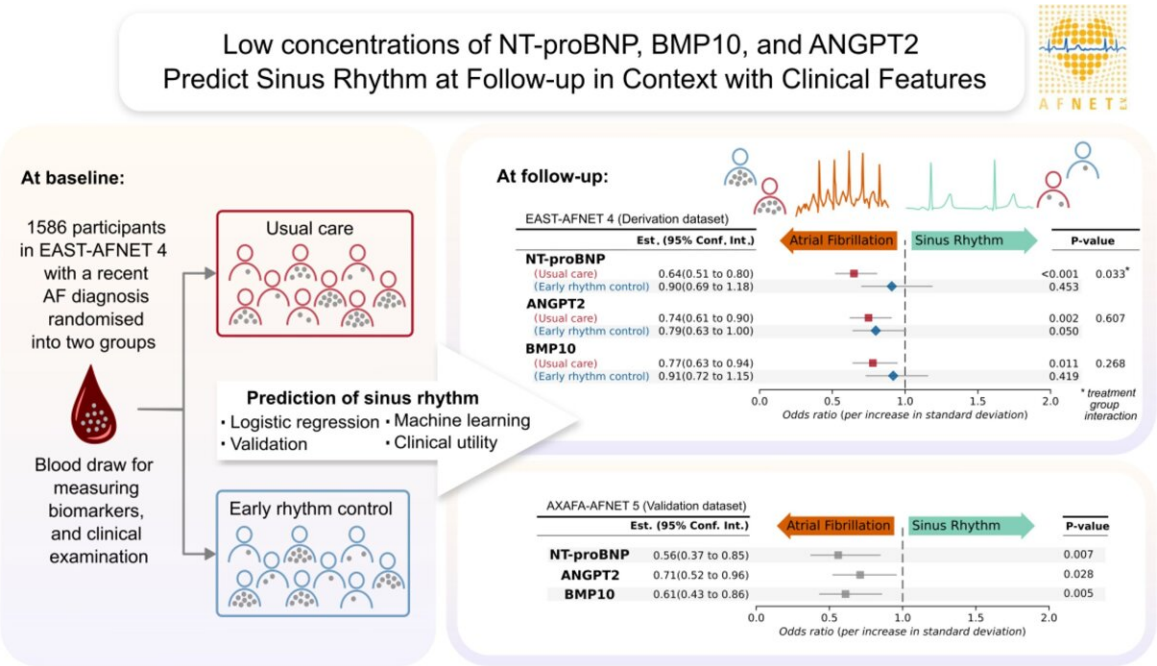

1

Graphical Abstract. Credit: *European Heart Journal* (2024). DOI: 10.1093/eurheartj/ehae611

Low concentrations of three selected biomarkers in the blood of patients with atrial fibrillation identify patients with a high chance of attaining sinus rhythm. This is the main result of this analysis of the EAST—AFNET 4 biomolecule study.

The findings have been presented by AFNET Steering Committee member Prof. Larissa Fabritz, University Medical Center Hamburg Eppendorf (UKE), Hamburg, Germany, at the annual congress of the European Society of Cardiology (ESC) in London and published in the *European Heart Journal*.

Atrial fibrillation (AF) is the most common arrhythmia in senior people. AF often occurs in patients with cardiovascular comorbidities. Recurrent AF is determined by interactions between cardiovascular disease processes and rhythm-control therapy. Predictors of attaining sinus rhythm at follow-up are not well known.

The EAST—AFNET 4 (Early Treatment of Atrial Fibrillation for Stroke Prevention) trial demonstrated that early rhythm control—with antiarrhythmic drugs or atrial fibrillation ablation—delivered within one year after AF diagnosis improves outcomes in 2789 patients with early AF and cardiovascular risk factors compared to usual care (UC) over a 5-year follow-up time.

A series of sub-analyses of the EAST—AFNET 4 data set verified the results for different sub-groups. A biomolecule study embedded into the EAST—AFNET 4 trial found that biomolecule concentrations in the blood of AF patients can be used to identify patients at high and low cardiovascular risk.

Prof. Paulus Kirchhof, UKE, principal investigator of EAST—AFNET 4 and AFNET board chair, explained, "Predicting the chance of attaining sinus rhythm could help to identify patients requiring intensive rhythm control. The cardiovascular complication-reducing effect of early rhythm control therapy shown in the EAST—AFNET 4 study is mainly mediated by sinus rhythm at 12-month follow-up. In this new analysis, we wanted to assess which biomarkers can be used to predict sinus rhythm at 12 months in patients with atrial fibrillation with and without

early rhythm control therapy."

14 biomarkers reflecting AF-related cardiovascular disease processes were quantified in the blood of 1586 participants of the EAST—AFNET 4 biomolecule study. Three of these biomarkers—ANGPT2, BMP10, and NT-proBNP—proved to be linked to future sinus rhythm.

Higher baseline concentrations of these biomarkers were independently associated with a lower chance of sinus rhythm at 12-months, and low concentrations of ANGPT2, BMP10 and NT-proBNP predicted sinus rhythm during follow-up. The predictive effect of NT-proBNP was reduced in patients receiving early rhythm control therapy (Pinteraction=0.033). Analysis of heart rhythm at 24 months and external validation confirmed the results.

Prof. Fabritz concluded, "Our findings suggest that the three biomarkers NT-proBNP, ANGPT2 and BMP10 identify patients with AF at high risk of not attaining sinus rhythm in the future. The disease processes related to the novel biomarkers ANGPT2 and BMP10 likely also contribute to future sinus rhythm with and without rhythm control therapy. NT-proBNP elevations interact with early rhythm control, potentially suggesting repeat assessment of NT-proBNP to monitor the effectiveness of rhythm control."

The EAST—AFNET 4 biomolecule substudy was performed on an international level in cooperation with the European research consortia CATCH ME and MAESTRIA.

More information: Larissa Fabritz et al, Biomarker-based prediction of sinus rhythm in atrial fibrillation patients: the EAST-AFNET 4 biomolecule study, *European Heart Journal* (2024). DOI: 10.1093/eurheartj/ehae611

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