Title: Role of biological markers for the risk stratification of cerebral bleeding and ischemic stroke in patients with atrial fibrillation on oral anticoagulants for primary or secondary prevention of ischemic stroke: the Strat-AF2 Study

Abstract: Atrial fibrillation (AF) causes cardioembolism and ischemic stroke. Long-term oral anticoagulation is the mainstay therapy for ischemic stroke prevention, but benefits have to be balanced against the risk of bleeding, mainly of intracranial hemorrhage (ICH). Moreover, anticoagulation does not completely eliminate the risk of ischemic stroke and thromboembolism in AF patients. On one side we need to identify those patients at highest risk of ICH, for whom it would be better to avoid anticoagulants, while on the other side we need to identify patients at highest risk of thromboembolisms despite anticoagulation, for whom add-on treatments might be advocated. Available stroke and bleeding risk stratification schemes rely on just clinical information, validity of which remains controversial and needs to be improved. Attempts have been made to refine the scores by the addition of biomarkers (blood, urine, cardiac and cerebral imaging), but data are still inconclusive as to whether the costs are justified. Neuroimaging markers, especially those related to cerebral small vessel disease, may act as surrogate markers of the bleeding and ischemic risk. Biomarkers of atrial dysfunction or cardiopathy are associated with ischemic stroke risk, and particularly those related to embolism. Metabolomics allows the identification, quantification and characterization of the complete set of low molecular weight metabolites (the metabolome), and has the potential to discover new systemic markers of embolic/hemorrhagic risk profile in AF patients. By means of Strat-AF2study we aim to evaluate in AF patients under treatment with any type of oral anticoagulants: 1) the potential incremental value of a wider set of biological markers (clinical, circulating, metabolomics and neuroimaging) and of their possible interaction, on the prediction of bleeding risk; 2) the potential value of biological markers (clinical, circulating, metabolomics, cerebral and cardiac imaging) and of their possible interaction, on the prediction of thromboembolic risk. CT will be performed to assess types and burden of brain vascular lesions. Comprehensive cardiac evaluation will also be added (ECG, transthoracic echocardiography and cardiac MRI). Metabolomics will be used to assess the metabolome of each single patient.

References:


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