Victoria Stopa

Abstract

Sudden cardiac arrest (SCA) is the third leading cause of death in Europe, with many survivors not only facing cardiovascular issues but also suffering from long-term neurological impairments. We currently lack accurate and specific biomarkers to reliably predict outcomes following SCA. Post-transcriptional modifications of RNA, as N6-Methyladenosine (m6A) can be key regulator of intracellular processes and be implicated in atherosclerosis, cardiac remodeling, and neurological disorders. However, its role in SCA-induced cardiovascular and neurological impairments remains lacking This bilateral collaboration between the Centre Hospitalier de Luxembourg (North Pole study, Department of Intensive Care Medicine, Dr Pascal Stammet) and the Luxembourg Institute of Health (YMCA project, Cardiovascular Research Unit, Dr Yvan Devaux) investigates whether m6A modification in circulating RNAs could serve as biomarkers for neurological impairment or mortality following SCA. Ms Victoria Stopa, PhD student at LIH conducts this project founded by the Fondation Coeur Daniel Wagner. In 211 blood samples from SCA patients of the North Pole, we are quantifying total m6A modification and M6A content is compared between patients with and without post SCA neurological impairment and linked to 6-months prognosis. To gain a more detailed understanding, we are identifying m6A modification in specific coding and non-coding RNAs through the latest direct RNA sequencing technology from Oxford Nanopore Technologies. Some genes are differentially expressed between the two patients groups. This paves the way for exploring the functional role of m6A modification. With the present project, we expect to identify potential new therapeutic targets, prognostic tools and enhance risk stratification in SCA patients, ultimately contributing to more personalized medicine