Lipid Profiles and Associated Symptoms and Outcomes in Acute Ischemic Stroke Patients

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Aim/Purpose/Objective: The purpose of this study was to determine the feasibility of a 1-month protocol and to describe self-reported symptoms and their association to cognitive and functional outcomes in persons with acute ischemic stroke (AIS) who did and did not receive reperfusion intervention (e.g., tPA, mechanical thrombectomy). We explored these factors and their association to underlying lipid biomarker signatures.

Sample: We enrolled 30 participants post-AIS categorized into reperfusion intervention and non-reperfusion intervention groups (n=15/each) during hospital admission (inpatient). Peripheral plasma samples were collected for lipidomic analysis (study day 5 and 1-month). Self-reported symptoms, cognitive and functional outcome data were collected (study day 5 and 1-month) from patients.

Setting: For this 1-month prospective study, a convenience sample of 30 AIS survivors were recruited from UI Health Hospital in the acute and critical-care units.

Methodology: Quantitative, Observational/Participant Observation, Physiological Data, a Prospective Cohort Study

Results: This protocol was feasible as evidence by 70% of participants completed the questionnaires and blood draws. Higher fatigue and anger symptoms were associated with poorer cognitive outcomes. Oxidative stress pathways were associated with higher symptoms and poorer cognitive outcomes in AIS participants. Information on the participants' characteristics are summarized in Table 1.

Conclusions: Analyzing plasma lipid markers may provide lipidomic signatures useful in predicting the development of symptoms as well as cognitive and functional outcomes following acute ischemic stroke.

Implications: This pilot study evaluated the feasibility and acceptability of our research protocol and will lead to the submission of an R-series grant. The long-term goal is to understand the underlying pathophysiology of AIS, in order to develop additional interventions (e.g., dietary, physical activity) to improve symptoms and outcomes for AIS survivors.

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