Biomarker signature of stroke aetiology study (BIOSIGNAL)

Principal Investigator:	PD. Dr. med. Georg Kägi
Status:	ongoing, recruitment finished
Project Start:	2016
Project End:	2019
Trial Design/Class:	international, multicenter, prospective, Cohort Study/ Class A-Non-Clinical Trial
Number of Patients:	3000 total (approx. 300 in St. Gallen)
Centers:	11 (Switzerland-St. Gallen, Basel, Bern, Aarau, Lausanne) (International-Barcelona, New York, Larissa, Berlin, Frankfurt, Mannheim)
Sponsor/Partner:	Universitätsspital Zürich/Dr. med. Mira Katan
Funding:	Universitätsspital Zürich, Swiss National Science Foundation

Summary:

In 25-39% of cases, the cause of the stroke cannot be found despite careful clarification. These patients may not be adequately treated for secondary prevention. This is especially the case in patients with undetected atrial fibrillation who would require medication for blood thinning.

The use of blood biomarkers could help to find the right cause of stroke in the acute phase and to identify those patients who are particularly at a high risk of recurrent stroke. This can potentially facilitate optimal secondary prevention at an early stage and the risk of new strokes could be reduced.

The following biomarkers appear to be promising on the basis of scientific data and will be investigated in the study: D-dimer, pro-hormones of the natriuretic peptide type A and type B (NT-proBNP and MR-proANP), lipoprotein-associated phospholipase A2 (Lp-PLA 2) and CD-40 ligand. D-dimer, NT-proBNP, and MRproanP are potential markers of cardio-embolic stroke (strokes caused by heart clots, especially in atrial fibrillation), Lp-PLA 2, and CD-40 ligand may be associated with strokes caused by atherosclerosis of large, brain-supplying vessels.

Objectives:

Aim 1: To determine whether the proposed biomarkers independently predict recurrent stroke among all patients.

Aim 2: To determine whether CE biomarkers are associated with atrial fibrillation among all patients.

Aim 3: To determine whether LAA biomarkers are associated with a) the presence of cerebrovascular atherosclerosis among all patients. Exploratory

Aim 4 (center of Zurich only): To determine whether the proposed biomarkers will predict b) new silent strokes and c) progression of chronic cerebral ischemic lesion (white matter hyper-intensity) volume (WMHV) among cryptogenic stroke patients.