BeLOVE

Berlin Longterm Observation of Vascular Events

BERLIN INSTITUTE OF HEALTH
Charité & Max Delbrück Center

STEERING COMMITTEE

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Recognize risks. Understanding interrelations.

SHORT SUMMARY

The objective of BeLOVE is to identify novel pathophysiological cross-disease mechanisms and treatment targets that determine both short and long-term outcome of high-risk patients with acute vascular disease (i.e., acute cerebrovascular disorder, acute coronary syndrome, acute heart failure, and acute kidney injury) and diabetes. With an interdisciplinary approach and deep phenotyping, BeLOVE will investigate the impact of systemic factors and co-morbidities (e.g. retinopathy, kidney dysfunction) on risk and prognosis of these vascular diseases as well as effects of specific/individual vascular events on remote organs (e.g., neurocardiogenic damage after stroke, cognitive deficits after acute cardiovascular events. BeLOVE will provide a uniform and standardized backbone phenotyping of all patients, but enables different levels of participation and combination with modules for additional disease-specific testing. Broad participation of basic and clinical scientists as well as clinical epidemiologists from BIH, Charité, and MDC will promote the identification of cross-disease mechanisms (e.g., contribution of gut microbiome, immune system, metabolic factors, stress, vascular function, (epi)genetic factors). BeLOVE serves as a unique resource of integrated high quality biomedical data and biomaterials open to the BIH community for testing of current and future research hypotheses.

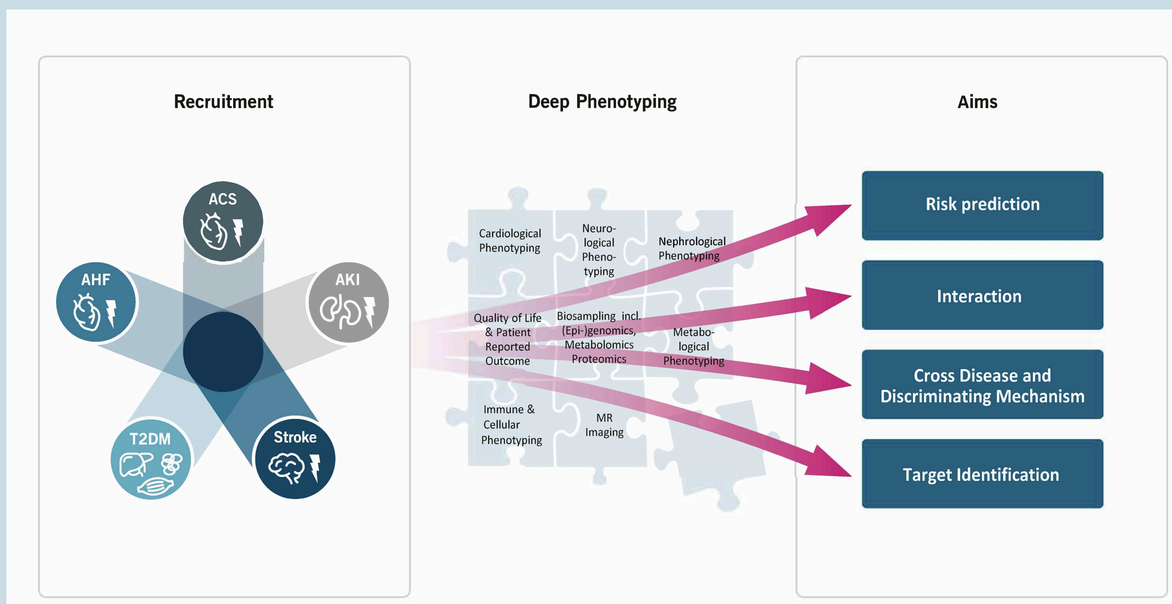

Figure 1: General concept of BeLOVE. (Acute heart failure (AHF), Acute coronary syndrome (ACS), Acute cerebrovascular disorders (stroke), Acute kidney injury stage 2 or 3 lasting ≥72h (AKI), Type 2 diabetes mellitus (T2DM)

THE GENERAL CONCEPT

Aims

Improve prediction and mechanistic understanding of cardiovascular disease progression and outcomes in patients in very high risk in order to provide the basis for improved, individualized management.

Strategy

Combining cutting edge phenotyping technologies with short- and long-term observation in patients with distinct cardiovascular disease manifestations to identify

a) unifying and divergent mechanisms of disease progression
b) endogenous protective mechanisms
c) risk factors
d) novel therapeutic targets
e) cross-organ interactions
f) methods of improved risk prediction based on complex data analysis

INNOVATION

BeLOVE is open to new research hypotheses developed by the broad scientific community of the BIH, Charité, and MDC. However, it focuses on three overarching themes:

1. Disease overarching mechanisms (e.g., microbiome & immune homeostasis, body composition & metabolic function)
2. Risk prediction & target identification (e.g., early vs. late, risk stratification, cross-over risk, comprehensive risk models, machine-learning techniques)
3. Interaction between diseases and organ systems (systemic effects of vascular events, organ-interaction, effects on remote organs)

METHOD

Research Groups and Interested Cooperation Partners are Invited to Participate and Integrate Further Modules.

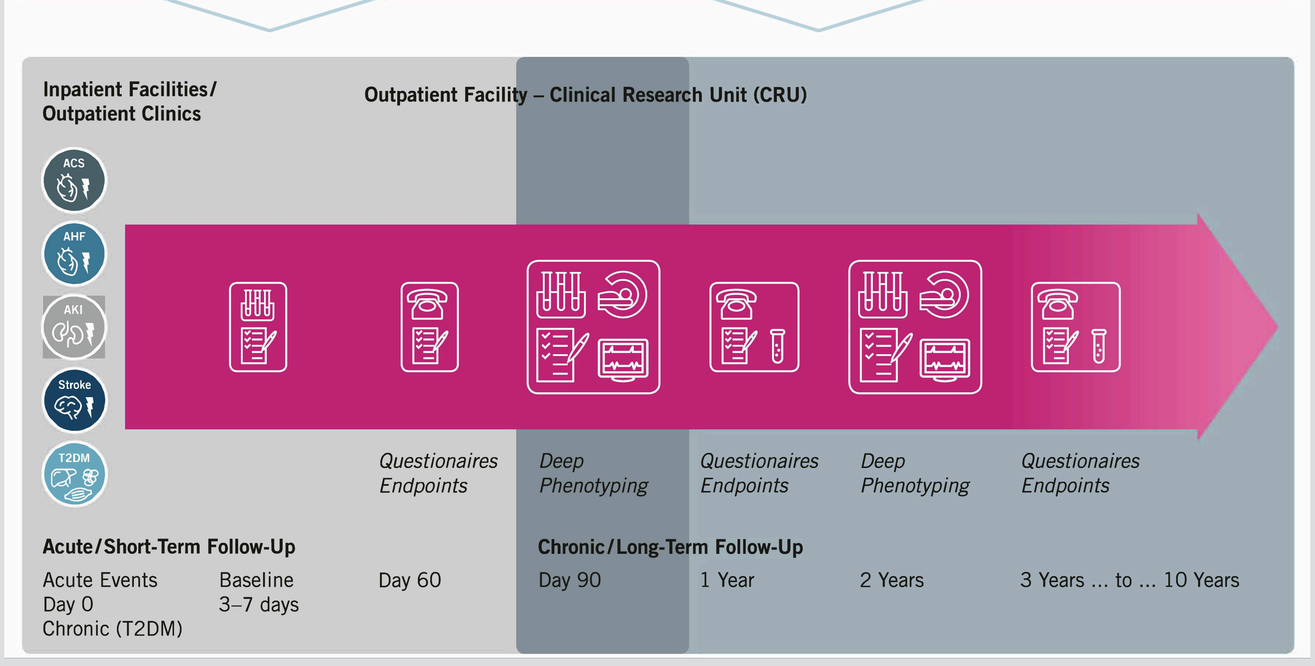

Figure 2: Study design. Follow-up timeline and procedures of the BeLOVE initiative