WWTF Project LS18-090

Beyond lipid lowering - defining residual risk of cardiovascular events

Abstract

Cardiovascular disease (CVD) is the most common cause of mortality in Europe. Despite well-controlled levels of low density lipoprotein cholesterol (LDL-C) CV events occur at cumulative incidences of >20% at 5 years. These observations stimulate search for other mechanisms that account for CV events. In this translational biomedical research approach we will combine an academic investigator-initiated trial funded by Inselspital Bern aiming to understand the impact of LDL-C lowering on atheroma volume in high-risk ACS patients, with a basic science project addressing the innate immune system. This placebo-controlled trial will be a unique resource of tissues from a clearly defined patient cohort. By combining the strength and expertise of a physician-scientist and a basic atherosclerosis researcher, the proposed project will dissect unexplored, fundamental processes raising the risk for atherothrombosis beyond the lipid hypothesis of atherosclerosis. Innate immunity gives rise to sophisticated processes, which can be explored in the unique setting of this trial. We will analyse signaling pathways leading to neutrophil extracellular trap (NET) formation, investigate impact of oxidation epitope-specific IgM and microvesicles carrying oxidation-specific epitopes from different cellular origins, and study their ability to stimulate neutrophil effector function. We expect to extend understanding of CVD beyond well-described LDL-C-dependent pathways, to benefit high-risk patients.

Scientific disciplines:
302030 - Internal medicine (50%) | 302032 - Cardiology (25%) | 301902 - Immunology (25%)

Keywords:
acute coronary syndrome, atherosclerosis, neutrophils

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Further links about the involved persons and regarding the project you can find at
https://archiv.wwtf.at/programmes/life_sciences/LS18-090