

Introduction

Dear Esteemed Colleagues and Friends,

You are about to peruse a very special issue of *Physiological Research* especially devoted to atherosclerosis. In it, you will also find articles focused on disorders and disturbances of lipid and glycide metabolism, but their connection to atherosclerosis is quite evident.

Officially, this special “atherosclerosis issue” has been published in honor of the annual congress of the Czech Atherosclerosis Society, which is being held in Spindleruv Mlyn; but there are additional reasons behind the selection of atherosclerosis as its primary topic. Above all, it must be said that there have been fascinating research developments in this particular field, both basic and clinical. It is intriguing to follow new insights into the immune mechanisms of atherosclerosis development and the correlation between subclinical atherosclerosis and venous thromboembolism, as well as the study of endothelial dysfunction in patients with end-stage heart failure.

Several studies support the concept of a common “cardiometabolic risk” and describe the role of fatty acids in the development of metabolic syndrome, or the role of different parameters on insulin resistance.

From a clinical point of view, it is necessary to underscore the importance of statin-induced myopathy and its clinical consequences. This frequently overlooked and underestimated problem represents a very serious condition that is responsible for non-compliance in our patients and poor response to treatment. Also, the significance of cigarette smoking as a key risk factor for cardiovascular disease has been stressed yet again.

It was not possible to cover all of the recent developments in the field of lipids and atherosclerosis in this special issue, and understandably so. As a clinician, however, I would like to mention a few noteworthy topics. We are living in a breakthrough era of new discoveries and developments. The greatest progress has

been in relation to familial hypercholesterolemia and new lipid-lowering drugs, which will allow us to achieve target levels of LDL-cholesterol in most of our patients. Once again, an interesting story of longevity in a group of patients has led to another new discovery; this time concerning the function (and mutations) of the PCSK9 enzyme. A new group of drugs that inhibit this enzyme have been developed, and their efficacy and safety have now been evaluated extensively. In addition, the Apo B antisense drug mipomersen is under development, and the MTP inhibitor lomitapide is already proven for homozygotes of familial hypercholesterolemia in special cases. We also expect promising results from interventional trials (despite previous disappointments) with CETP inhibitors. Finally, we cannot forget the new drugs that influence residual risk; new PPAR-alphas/deltas are to be assessed in phase III of clinical trials.

Fortunately, during the last few decades, cardiometabolic syndrome (a topic associated with atherosclerosis and lipids) has played a significant role in the prevention of cardiovascular disease. Scientists, researchers and clinicians from different specializations have joined together in the fight against coronary heart disease and stroke, with tremendous focus being directed toward prevention. This issue of *Physiological Research* is a testament to the milestones achieved in atherosclerosis discoveries.

Last but not least, I would like to express my compliments and congratulations to two colleagues: Jaroslav Hubacek, guest editor of this “atherosclerosis issue”; and Michal Vrablik, President of the Czech Atherosclerosis Society, whose dedicated efforts in organizing this special collection of extraordinary papers are greatly appreciated.

Richard Ceska