Editor's Page

The Need for More Research in Europe

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During the last decades, significant changes have marked research, scientific knowledge and clinical practice. Large scale epidemiological and randomised controlled trials have revealed risk factors, exposed the underlying pathophysiology of cardiovascular disease, and established evidence-based medicine. The pattern of clinical practice has changed and clinicians can with confidence justify their decisions and interventions according to guidelines and published algorithms.[1,2] These outstanding changes have decreased the mortality and morbidity of cardiovascular disease and have improved our patients' quality of life.[3,4]

Despite the aforementioned improvements, cardiovascular disease is still the leading cause of death in Europe and the United States of America, with a significant cost in terms of both human lives and the economy.[5] Similarly, in the south-eastern corner of Europe, additional factors, such as the espousal of western lifestyles, the failure to reduce smoking prevalence, and the abolition of the Mediterranean Diet pattern have additionally increased cardiovascular disease rates.

This "weird" balance between better treatment results in terms of morbidity and mortality on the one hand, and the increase in the prevalence of cardiovascular disease on the other, is a real paradox that highlights the need for further understanding and focus on research into cardiovascular disease.

At this point we have to note that interest in cardiovascular diseases on the part of society, public health systems and pharmaceutical companies has declined, and that our specialty receives less than half of the funds spent on, for instance, anti-cancer therapy. This evidence strengthens the need for a more balanced distribution of research expenditure in future years.[6]

The need for basic research

Large clinical trials in recent years have established a series of treatments with proven benefit for cardiovascular patients, such as primary percutaneous intervention and implantable cardioverter defibrillators. However, these strategies were implemented at least 15-20 years ago and what we observe for the last decade is that there appears to be stability in the improvement rates. In parallel, we observe a fall in the level of basic research funding, which is also reflected in the decline in citation rates and in publications concerning basic research.[7] In line with the decline in basic research, the interest in translational research (research that aims to connect basic research and in *vitro data* with experiments resembling clinical scenarios) is limited and only recently have large funding institutions re-focused on this specific research field. Under these circumstances it is of paramount importance for cardiovascular research to be reoriented towards basic pathophysiological concepts, as a growing understanding of the underlying mechanisms may further improve the design and outcome of large randomised trials and may enhance the clinical significance of ongoing trials. Moreover, basic research can reveal further, as yet unknown, possible risk factors, which can be tested in large epidemiological registries and applied in primary and secondary prevention settings. The European Society of Cardiology and National Cardiology Societies have the responsibility to highlight the importance of preclinical research and to tilt the funding balance towards *in vitro* and *in vivo* experimental projects that, although not attractive or fascinating to an inexperienced audience, may have a great impact on scientific progress.

Large epidemiological studies

During previous decades, large epidemiological studies and prospective cohort trials revealed the basic risk factors for cardiovascular disease. Moreover, a series of studies have focused on the characteristics that essentially specify vulnerable plaques responsible for acute myocardial infarction. However, recently discovered risk factors can explain only approximately 70% of the variability in coronary artery disease prevalence, while studies of the characteristics of vulnerable plaques have failed to discriminate with sufficient timeliness patients who are prone to developing new acute coronary syndromes that need more intensive treatment. Future efforts must accordingly be allocated for the better identification of the population at risk. Epidemiological and prospective cohort studies have to be financially supported in order to create new imaging tools or potential biomarkers capable of reclassifying subsets of subjects, especially those whom the current risk scores categorise in the intermediate risk group.

The link between research and industry

There is no doubt that clinical studies, especially when positive, are more fascinating and attract the interest of the public and industry. Accordingly, funds are mainly directed in this direction. The European cardiology community has therefore to undertake the efforts needed to persuade society, health system managers and institutions that such an investment in basic cardiovascular research can achieve significant benefits for patients and health systems. They have also to present the previous achievements of basic research in terms of prevention and management of cardiovascular disease in a comprehensive way that people and leaders of the responsible institutes can easily appreciate. It is also of great importance for the Hellenic Cardiological Society to establish the prerequisite structures to facilitate the financial support of cardiovascular research.

From the position of the Editor-in-Chief of the Hellenic Journal of Cardiology, I would like to point out that not only has the Hellenic Cardiological Society made a recognised and significant contribution to research and academic achievement, but it is also determined to promote the achievements and significance of basic, translational, and epidemiological research.

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