treat persistent AF when compared to voltage-based 3D mapping systems that also require tissue-contact.

The prospective, single-arm, multi-centre, multi-national, non-randomized, post-market UNCOVER-AF clinical study (NCT02825992) is now underway to assess the technology. The objective of this carefully designed study is to address procedural and long-term outcomes in 125 persistent AF patients treated with AcQMap guided ablation therapy. The first enrolled patient was treated at Papworth Hospital in Cambridge on 24 October 2016.

Conflict of interest: Andrew Grace is a member of the Scientific Advisory Board of Acutus Medical, receives research support for relevant studies, has no personal financial interest and receives no compensation from the company. Atul Verma has received research funding from Bayer, Biosense, & Medtronic. Stefan Willems is a member of the Advisory Board of Bayer & Boehringer Ingelheim. He has received lecture fees/honoraria from: Bayer, Biosense Webster, Boehringer Ingelheim, Boston Scientific, Bristol Myers, Daiichi Sankyo, St. Jude Medical.

References

References are available as supplementary material at European Heart Journal online.

doi:10.1093/eurheartj/ehw586

Christina Fanola MD MSc

Recipient of the Young Investigator Award at ESC Congress 2016 and now first author for A Novel Risk Prediction Score in Atrial Fibrillation in this EHJ issue

Dr Fanola is a practicing vascular cardiologist and current clinical trials Research Fellow with the TIMI Study Group, an academic research organization affiliated with Brigham and Women’s Hospital and Harvard Medical School in Boston, Massachusetts, U.S.A. Prior to initiating work with the TIMI Group, Christina completed clinical and research training in both vascular medicine and cardiology at Boston University, and received a Young Leadership Award from the American College of Physicians.

Her research training was supported by an NIH/NHLBI sponsored K12 vascular career development program, where she focused her research efforts on antithrombotic therapy, with a specific interest in outcomes for patients on warfarin therapy under the mentorship of Dr Elaine Hylek. She has published several articles on thrombosis, and has co-authored two chapters on arterial and venous diseases in a forthcoming book.

Dr Fanola received a Master of Science (MSc) in epidemiology, with a concentration in biostatistics and clinical trial design at the Boston University School of Public Health before starting the clinical trials Fellowship at Brigham and Women’s Hospital. At present, with the TIMI group and under the senior mentorship of Dr Eugene Braunwald and Dr Marc Sabatine, Christina has an active role in the design, execution, and analysis of several clinical trials, including a large phase 3 clinical trial studying the cardiovascular effects of a weight-modification drug, and of a phase 2a trial of a novel lipid-modifying agent.

In addition, she has a leading role in several ongoing sub-group analyses from the ENGAGE-AF TIMI 48 trial of edoxaban, and has recently won the Young Investigator Award from the European Society of Cardiology 2016 Congress in thrombosis research for a novel risk score in atrial fibrillation which can predict a differential therapeutic benefit of non-vitamin K oral anticoagulants.

Dr Fanola is an independent peer reviewer for several top cardiology and vascular journals, including Circulation, Stroke, and Thrombosis Haemostasis, and has served as an abstract reviewer in vascular diseases for both the Frontiers in Cardiovascular Biology and the American College of Cardiology Scientific Sessions.

When not involved in research or clinical work, Christina spends much of her leisure time as captain of a Sabre 30 or C&C 34 sailboat, either in races around the Boston Harbour or going along the New
Insufficient Cardiovascular Research & Development Funding

A global problem particularly threatening in some European countries

Defining an optimal level of research funding may be difficult in the context of all the other important activities requiring funds, from education to security and justice. However, there are aspects of Research & Development (R&D) funding that can be easily identified as potentially problematic. Far from being an expert in the economics of research and health, my experience as an academic cardiologist and a scientist, indicates that actions may be required in R&D funding in general, in cardiovascular R&D funding in particular and in R&D funding in some European countries.

If we analyse allocation of funds for R&D in the world and its temporal evolution and trends, some facts can be easily appreciated.

Firstly, after a period of growth, the percentage of the Gross National Product (GNP) dedicated to R&D in countries with the highest levels of research funding, such as Japan, the USA or Germany, remain essentially stable, close to 3% of GNP. There is cause for concern that the rate of scientific advancement will be lower in the future than in previous years, where there was a continuous increase in funding levels.

Secondly, the stability in R&D funding levels is also seen in industrialized countries with lower funding levels: around 2% of GNP for the European Union. We can anticipate that the gap between R&D results in the USA and the EU will not be reduced in the near future.

Thirdly, globalization, the increasing power of big corporations and the recent economic crisis has reoriented research activity towards a more business-oriented model. Immediately applicable research and innovation are more and more preferentially funded in an attempt to translate benefits to the society but also to transform knowledge into economic value as fast as possible. But harvesting funds to the detriment of seeding may not be the best way.

Cardiovascular R&D funding has specific problems. Cardiac (not even cardiovascular) diseases are the main cause of mortality and loss of quality life years in the global population, and it is expected to keep that position at least during the next ten years. Yet cardiovascular R&D funds are not in the leading position for funds received, where cancer research is first. There are several reasons to explain the disproportionately low level of funding of cardiovascular research.

1. The understandable human emotional factors inherently associated with cancer diseases.
2. The economic implications for drug companies of the previous factors in 1 above.
3. The false perception among lay people and many professionals that cardiac diseases are preventable by adequate primary prevention and are in fact declining.
4. The hyper-acute nature of some of the most socially important cardiac conditions, such as acute myocardial infarction with ST-segment elevation or sudden cardiac death, makes these conditions less attractive for drug companies compared to chronic conditions requiring chronic treatments. In fact, most of the recent advances in pharmacological therapy for cardiac diseases are in fact aimed at extra-cardiac targets of chronic conditions (vasodilators, diuretics, anticoagulants, lipid-lowering drugs).
5. The late incorporation of molecular and genetic science to cardiovascular research. Also the prominent and importance of physiological studies to investigate heart diseases being physiology are an under-funded area.

It is thus important and urgent to increase cardiovascular funding to levels that correspond to the social and economic impact of cardiovascular diseases by making their social and economic importance clear to politicians and funding agencies, and the European Society of Cardiology should have a leading role in this action.

It is also important to increase public funding to develop cardiac therapies where there is a reduced perspective for economic reward. We must campaign to potentiate funding of physiological studies. There is also a need to potentiate programs aiming to bridge the gap between laboratory and clinical cardiovascular science, increase multi-discipline coordination and to attract, and retain, young talent to cardiovascular medicine.

Finally, there are large differences in the proportion of funds allocated to R&D within the EU, with several relatively large countries allocating around 1.5% or less of their GNP to R&D. As a consequence of the recent economic crisis, research funding has been further reduced in some of these countries. In Spain, for example, public funding of health and fundamental research projects has been reduced to levels that correspond to the social and economic impact of cardiovascular diseases are preventable by adequate primary prevention and are in fact declining.

doi:10.1093/eurheartj/ehw587

Andras Tofield

England coast on a long cruise. She has been a member of the Boston Sailing Centre for over 8 years and plans on one day obtaining her Coast Guard Captain’s License. During the winter months, she loves mountaineering and skiing in the White Mountains of New Hampshire.