

# New ESC Journal *EHJ-Acute Cardiovascular Care Journal*

**The Working Group on Acute Cardiac Care of the European Society of Cardiology launches its official Journal—the *European Heart Journal: Acute Cardiovascular Care (EHJ-ACVC)*, as a member of ESC Journal Family**



This new journal closes an important gap in the ESC Journals Family—we welcome Acute Cardiovascular Care writes Professor Thomas Lüscher Editor-in-Chief, *European Heart Journal*.

Acute Cardiac Care is an area of cardiology that is increasingly recognized as a subspeciality in its own right. Most patients admitted to intensive care units and coronary care units suffer from acute coronary syndromes, cardiogenic shock, cardiac arrest, cardiac arrhythmias, and acute heart failure—major life-threatening conditions requiring the coordination of multidisciplinary teams to deliver state-of-the-art treatment to improve the outcome in these patients.

The *EHJ-ACVC* journal will offer a unique integrated approach combining the expertise of the different subspecialities

of cardiology, emergency, and intensive care medicine, in the management of patients with acute cardiovascular syndromes.

Prof. Christiaan Vrints, from Antwerp University Hospital in Belgium and Editor-in-Chief of the *European Heart Journal: Acute Cardiovascular Care*, said: 'We cover a much needed platform focusing on patient care, ranging from the pre-hospital phase to the time the patients leave the Intensive or Coronary Care Unit. Our new journal is not disease specific or limited to the scope of a particular methodology. We encompass the entire spectrum of diagnostic and treatment capabilities and the multidisciplinary nature of modern health care. The *European Heart Journal: Acute Cardiovascular Care* aims at translating new evidence-based concepts into daily clinical care and will therefore also have a strong educational focus'.

The editorial board of the journal gathers peer reviewers from all over Europe. Through their expertise, the *European Heart Journal: Acute Cardiovascular Care* will publish the highest quality material, both clinical and scientific, on all aspects of acute cardiac care.

The first issue—to be published in spring 2012—will be a landmark publication and one which includes research from some of the most prominent research groups in the field. The journal is to be widely distributed online and in print formats.

To contribute to the new *European Heart Journal: Acute Cardiovascular Care* and submit a paper, the manuscript submission site may be accessed at <http://www.editorialmanager.com/acc/>.

*ESC Working Group on Acute Cardiac Care*

# Should industry fund continuing medical education and scientific communications?

## Summary of a Position Document from the European Society of Cardiology

In its first White Paper<sup>1</sup> on the controversial subject of industry funded continuing medical education (CME), the European Society of Cardiology (ESC) acknowledges that industry plays a vital role in research and CME, while recognizing the growing debate on whether it should be allowed.

There is much discussion today about the health-care industry relationship with clinicians, and there is a political momentum from some quarters to force a divorce between the two. Indeed, CME funding by industry is in decline in many countries, especially the USA. That funding shortfall could be a danger in the long term. So, a proper debate, taking all views into account, is essential before hasty decisions are made.

At a time when medical societies are being criticized for accepting financial support for medical education from the pharmaceutical industry and there are calls by some, including the Royal College of Physicians in the UK, to ban industry funding altogether, the ESC believes this is the wrong approach—both ethically and pragmatically—because the goal of CME is to develop, maintain, and increase knowledge and understanding. The ESC recognizes that continued funding from industry is necessary, though the ESC advocates complete transparency and a proper code of conduct to frame this collaboration. With health-care budgets at breaking point in Europe, CME has to live in the real world and it would not be realistic to expect the public sector to cover its cost.

Given the ESC's mission to 'reduce the burden of cardiovascular disease across Europe', the society believes it is essential that there is continuity of training and best practice. There are still huge differences in cardiovascular disease outcomes in different countries. The EU directive on cross-border health care will be introduced in 2013, so a consistent approach is vital, especially as the burden on health-care budgets grows with an ageing population.

ESC President, Professor Michel Komajda, Head of the Cardio-Metabolic Division and Head of the Department of Cardiology of la Pitié Salpêtrière Hospital, Paris, explains: 'Continued support and funding for CME is essential and depends on the ongoing collaboration between healthcare providers, academic institutions, professional associations, charitable foundations and industry. However we need a rigorous code of conduct to maintain transparency and limit bias by enforcing disclosures of interest'.

He adds: 'In Europe, all educational activities undertaken by industry are bound by strict rules set by the European Federation of Pharmaceutical Industries and Associations (EFPIA) and the International Federation of Pharmaceutical Manufacturers Associations. The ESC seeks accreditation for its educational programmes from the European Accreditation Council for Continuing Medical Education and the European Board for Accreditation in Cardiology under the auspices of the European Union of Medical Specialists'.

The ESC White Paper also investigates the benefits of unrestricted educational grants: 'It is true that there is an argument that unrestricted educational grants or multiple sponsors of educational programmes may represent a more transparent approach', admits Professor Komajda, 'and it is an area the ESC believes warrants additional discussion, debate and research'.

The ESC is ideally placed to carry the debate on CME funding forward. It has 71 000 experts in all fields of cardiology; it publishes seven peer-reviewed journals and has cutting-edge learning programmes.

To eschew the benefits of collaboration between academia and industry would be to throw out the baby with the bathwater. To abolish current models of funding without replacing them with an alternative would be unacceptable, as CME is critical for the maintenance of high clinical standards and patient care.

$\beta$ -Blockers are a great example of collaboration that has saved millions of lives. The first  $\beta$ -blocker to lower blood pressure was propranolol, invented by Scottish pharmacologist Sir James Black.<sup>2</sup> It is said to be one of the giant contributors to clinical medicine and pharmacology in the last century and won him the Nobel Prize for Medicine in 1988.

Sir James Black perfectly married the roles of academia and business. He started off as an academic at Scotland's St Andrews University, enquiring into the blood pressure-lowering qualities of sodium iodoacetate, before working for both ICI and what is now Glaxo Smith Kline. Eventually, he became Chair of Physiology at University College London.

Perhaps, his obituary last year in the UK's Daily Telegraph perfectly sums up why clinicians and industry should co-operate: 'Black was called the father of analytical pharmacology and was said to have relieved more human suffering than thousands of doctors could have done in careers spent at the bedside. Certainly, no man on earth earned more for the international pharmaceutical industry'.

Cardiology has come a long way in recent years and well-funded research and education has played its part. There is vital synergy between industry, academia, and medicine to develop new techniques and treatments that best benefit patients.

Adam Kirtley, freelance writer

## References

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# The American College of Cardiology sets the pace: it's a close call between the catheter and the computer

## Not content with its own borders, the American College of Cardiology is aggressively seeking to expand its influence in Europe and elsewhere, much aided by the digital revolution, according to its Past President, Dr David R. Holmes Jr, talking with Barry Shurlock, PhD

A few years after the end of the Second World War, on a snowy Monday morning in New York City, Dr Franz M. Grödel, a German physician forced by events from his homeland, met in his office with 14 other cardiologists. Their object was to start a society for improving the quality of care of patients with heart disease. Their means was the provision of better education for medical professionals. This still is a major focus of the society they founded, the American College of Cardiology (ACC). Now, with a membership of 39 000—physicians, surgeons, nurses, and others—it arguably leads the cardiovascular world in evaluating care, promoting guidelines and evidence-based medicine, and communicating its findings to those who need to know—physicians, patients, and non-paramedical personnel alike.

For the past decade or so, the ACC has invested heavily in all means digital to make practice for the cardiologist easier and more effective. The latest developments in the speciality can now be followed on the net, using a variety of services, including CardioSource, ACC journals on iPad, an ACC clinical trials database, cardiologist-authored journal scans, the blog ACC in Touch, as well as the social medium for professionals, LinkedIn, and the conventional media, Facebook and Twitter.

One of the strongest advocates of the digitization of cardiovascular information has been Dr David R. Holmes, Jr, MD, FACC, who has just finished his year as ACC President. As well as holding the Edward W. and Betty Knight Scripps Chair of Cardiovascular Medicine at the Mayo Clinic College of Medicine, Rochester, MN, USA, he is an interventional cardiologist in the Division of Cardiovascular diseases at the Mayo Clinic and the recipient of numerous awards, including the ACC Distinguished Scientist Award (Clinical Domain) in 2006 and, more recently, the James B. Herrick Award of the American Heart Association Council on Clinical Cardiology and the Carl Wiggers Award.

Talking to *EHJ*, he said: 'During my time as President I have been incredibly keen to focus on science and education. I believe that they are the underpinning that ties everyone [in the cardiovascular community] together. I'm sensitive to the issues of "private versus academic medicine" and such-like; however no matter what the practice setting, it is science and education that matter most. As part of the process of being President, I've helped to select those people who organised the 61st ACC annual meeting, just held in Chicago, 24–27 March 2012. And asked them this time, in planning the meeting, to think creatively, to update our

educational strategy – for example, in the past we have had "what the lecturer wanted to say", rather than what the listener wants. So this year we focused on learner needs'.

Often at the forefront of ACC's digital activities, Dr Holmes played a major role in the development of the web-based i2 Summit Meetings of the ACC and has chaired the programming committee. The latest ACC digital initiative is the concept of Just-in-Time Learning (JITL), a system for updating the knowledge of the specialist in the setting of an imminent patient appointment. Dr Holmes explained: 'As we all know, there is a huge amount of information available in our subject area, and it just grows and grows. It's difficult to keep up to speed and so the Chicago meeting was a showcase for a new system, Just-in-Time Learning. Imagine, you are about to see a patient with a condition that is difficult to diagnose, or for which treatment options have been shifting in recent times. Just-in-Time Learning is a software application—for use with a computer or an iPad or smartphone—that "chunks" the data. Ask it a question and it identifies the appropriate guidelines, goes through them and chunks the relevant recommendations, so when you go into the room to see the patient you are well informed'.

'Of course, it doesn't take the place of clinical judgement, but it provides the things you need to think about when you don't have the time to read [the complete guidelines]'. In the future, Dr Holmes sees JITL, which originated in the business community, as a means of providing evidence that cardiologists are updating themselves, in the same way that Continuing Medical Education certification is used at the moment. Another software application in the ACC pipeline is aimed at helping the cardiologist and patient alike. An adjunct to CardioSmart, it is a picture-based educational package that patients will be able to access when clinicians need to explain forthcoming procedures to them, thereby saving time and improving standards of communication for a clientele that is savvier than ever.

One of the strengths of the ACC within the USA has been its network of 50 state-based chapters. On the path to his presidency, Dr Holmes served as a governor of the ACC Chapter of Minnesota. The college has latched on to this concept as a means of boosting its international membership, which is currently growing at 15% per annum. Suitably qualified non-US residents can join the ACC as international associate members by means of a fairly straightforward process that is outlined on the ACC website,

together with more rigorous procedures for those wishing to apply for fellowship status.

Since 2009, the ACC has endorsed a policy of creating foreign chapters with the cooperation of national cardiovascular societies. It is actively promoting the formation of foreign chapters, which now number 19, including those in Germany, Great Britain and Ireland, Greece and Cyprus, Turkey, Saudi Arabia, and elsewhere in the world. Benefits include a means for specialists to touch base with US events, as well as meeting and networking with indigenous ACC Fellows. Dr Holmes said: 'The College has realised that there is a global cardiovascular community out there and is aggressively expanding its international chapters. This is going to be hugely important and will, amongst other things, enable [foreign nationals] to share data, to participate in [US] national cardiovascular registries, to interrogate them and, for example, see how they are doing [in their own country]'.

Two years ago (April 2010), the German ACC chapter was launched in association with the German Cardiology Society (GCS) under the leadership of Dr Christoph Bode, MD, FACC. At the last count, it had 119 members and among its activities has been a joint ACC/GCS scientific session on imaging staged at the recent ACC meeting in Chicago (March 2012). This month (11–14 April 2012), there was a reciprocal session at the GCS meeting in Mannheim, Germany, on the theme 'common roots, common future'. The Great Britain and Ireland chapter was launched at about the same time (May 2010) under the leadership of Dr Nicholas Boon, MD, FACC, with the cooperation of the British Cardiovascular Society (BCS) and the Irish Cardiac Society. It has a membership of 214 and, following joint ACC/BCS sessions at the Chicago meeting, the highlights will be presented at the BCS annual conference to be held in Manchester, 28–30 May 2012.

Keen to emphasize another of his achievements as ACC President, Dr Holmes said: 'A final highlight [has been] the transformation of the relationship [of the ACC] with the Society of Thoracic Surgeons [STS]. This has led to an increasingly tight bond in optimizing patient care and the formation of a collaboration strategy for rational dispersion of procedures for transcatheter aortic valve replacement. This relationship between STS and

the regulatory agencies forms a pilot for a whole generation of new approaches to device development.

The full gamut of ACC activities echo the words of Franz Grödel, its founder, who wanted it to thrive 'not merely by dreams, but by concerted action and inextinguishable enthusiasm'. To fulfil these ambitions requires the work of a large number of permanent staff, now numbering 350. From modest beginnings in New York, the ACC moved its headquarters in 1965 to a suburban site in Bethesda, MD, USA, to be near to the National Institutes of Health. Here, its Government Relations Committee played an active role in shaping health-related US legislations in the interests of physicians and patients. But it outgrew this setting, and in 2006, it moved headquarters again, this time to Washington, DC, USA, where in a state-of-the-art building, Heart House, it keeps a watchful eye on Capitol Hill.

Among its activities in recent years are the Quality First Campaign, which advocates health reforms that maintain patient value and universal access to healthcare, and the Hospital-to-Home initiative, which aims to reduce cardiovascular admission to hospital by 20%. It has also created PINNACLE (Practice Innovation and Clinical Excellence), a registry-based cardiovascular network that enables practices to compare their practice with benchmarks of ambulatory care by means of 'quality measurement, performance improvement and peer-to-peer learning'.

Most recently, in January this year, it launched its own glitzy tabloid newspaper, *CardioSource Today*, aimed at cardiovascular professionals and linked into its existing website [www.cardiosource.org](http://www.cardiosource.org). Edited by Dr Christopher P. Cannon, MD, FACC, Professor of Medicine at Harvard Medical School, Boston, MA, USA, the new publication claims to present 'key major advances on a monthly basis' and to "seriously entertain" as it updates and educates'. Aimed at addressing the mountain of new information that cardiologists must cope with, it promises pull-outs to aid patient education and links to ready-to-present slides and audio and video interviews. It is a long way from that snowy morning in Manhattan when the ACC was born, but Franz Grödel, who was an enthusiast for gadgets and a pioneer of erstwhile novelties such as radiology and electrocardiography, would surely have approved.

## Turkey's response to CardioPulse Survey

### Profs Oktay Ergene and Cetin Erol discuss the benefits and concerns of cardiovascular healthcare in Turkey

Turkey sits at the crossroads between Asia and Europe, East and West. Accordingly, it has played a special historical role and continues to share cultural characteristics and heritage with many nations across both continents. This has impacted on both the challenges facing Turkey's health-care system as well as its unique approaches for overcoming them. The Turkish health system is mainly financed by the public, with the majority of funding provided by the General State and the Social Security Agencies. As there has been a significant decrease in the incidence and prevalence of

communicable diseases, chronic diseases have come forth as an important priority. Almost half of the annual deaths are now due to cardiovascular diseases.

1. *What is the greatest strength of Turkey's health-care system in tackling cardiovascular disease (e.g. prevention, acute treatment, long-term treatment)?*

The presence of a central and responsible agency—the Ministry of Health—that is actively involved in improving health is an advantage in Turkey. This is an advantage that the Turkish Society of

Cardiology (TSC) has tried to leverage through direct engagement of the Ministry in initiatives that are critical for cardiovascular medicine. For example, the Ministry established two new directorates for 'Non-communicable Diseases' and 'Promotion of Health', proposed by our 'National Heart Health Policy Book' in 2006. Both directorates and the first Prevention and Control Program for Cardiovascular Diseases were declared by the Ministry at the European Heart Health Charter's signing ceremony in Ankara at the end of 2007. Since that date, a new 'Strategic Plan Against CVD for 2010–2014', 'Obesity Prevention and Control Program 2010–2014', and 'Program for Prevention and Control of Tobacco Consumption' have been developed. Real efforts have now been put into effect, such as the creation of athletic fields and banning smoking in closed areas in 2008, which is having immediate results. Since 2008, tobacco sold has dropped by 15% and 2.2 million people have quit smoking. Similarly, efforts are underway to tackle the growth in diabetes mellitus. Sales of 'fast food' and carbonated beverages are being banned at primary and secondary schools. The Ministry also decided to support the European Society of Cardiology's 'Stent for Life Initiative' to control and decrease deaths from acute myocardial infarction.

2. *What is its biggest weakness regarding cardiovascular diseases? How does it deal with the challenges of being a middle-income country undergoing an epidemiological transition with an ageing population?*

The biggest weaknesses remain low level of public awareness in adopting heart-healthy lifestyles and insufficient cardiac rehabilitation services. Although the energetic campaigns started by the TSC and supported by several medical societies really increased awareness on hypertension and smoking, the average age for Turkish men and women developing cardiovascular disease continues to be almost 10 years younger than the corresponding figures in Western European societies. We are also actively trying to accelerate the qualitative and quantitative development of cardiac rehabilitation services and centres which are currently unable to meet the population's needs.

While we and other supporting societies and institutions encourage the population to adopt healthy lifestyles, the government and health insurance authorities actively try to decrease the costs by developing and improving an efficient purchasing system for drugs and devices. Another significant measure is leaving part of the drug and device costs to be paid by patients, to make them understand that 'preserving your health is preserving your wealth'.

3. *What is being done to measure and improve quality in cardiovascular disease?*

The Turkish National Statistics Agency recently started a new series to measure and follow-up the causes of death at health institutions. This is a programme that was greatly needed given the lack of adequate data on quality of care. At the TSC, we have been trying to persuade the National Health Insurance Authority to start national registries in cardiovascular diseases, perhaps modelled after those successfully used in Western European societies. The advantages are clear, since we could measure quality and target implementation efforts to raise the standards of care. The initial registry is being planned for interventional applications, but in a second phase, we hope to expand it to electrophysiology and ablation.

4. *What is being done to control costs?*

As elsewhere, there is a great concern for rising costs of health-care in Turkey. Several mechanisms are being put into place to optimize the use of different services in cardiovascular diseases and to potentially lower their costs by improving quality. For example, the design and development of the national registries mentioned above will allow us to better identify and target priority areas for investment in the future. Many procedures are expensive but also highly beneficial to patients. Some approaches may have short-term costs but reduce resource utilization in the long term, e.g. the rapidly increasing number of clinics for smokers wanting to quit should be considered within the context of future reductions in cardiovascular disease. From a policy perspective, the Ministry of Health has also recently imposed new regulations on the pricing of drugs and medical devices within the state reimbursement system.

5. *How does your country address cardiovascular preventive services?*

The TSC views preventive services as critical for cardiovascular diseases. Consequently, we have led numerous public awareness campaigns, such as '12/8 Hypertension Awareness', 'Love Your Heart, Go Red', 'Know your numbers', 'Heart Age', 'Love Your Heart, Know Your Numbers', and 'Care your heart, your loved ones are in it'. Besides these, the World Heart Day and World Hypertension Day activities are always regular activities in our annual programmes. Moreover, the TSC is about to launch two new public awareness campaigns to 'train' people how to respond to symptoms of heart attacks, including activation of the emergency medical system. 'Care your heart, your loved ones are in it' also had a separate phase to increase the education of primary care physicians by training them in risk screening. Six thousand 'first step' physicians and 1000 specialists have been trained through meetings, and 300 000 doctor kits were distributed throughout the country. As a result of multilateral meetings, healthy nutrition and preventive behaviours against diabetes are included in the regular curriculum of primary and secondary schools.

6. *How are cardiologists in your country incorporating innovative drugs and devices (e.g. TAVI) into their practice?*

Our cardiologists and surgeons are highly qualified for innovative therapies. They have been enthusiastic about acquiring the skills for performing TAVI and other structural heart disease interventions, like atrial septal defect and patent foramen ovale closures. Our Accreditation Board includes assessments about the roles of these newly developed techniques in its qualifying (written) and certifying (oral) examinations, as well as checking the presence of these techniques during their accreditation visits to specialized training centres. However, due to the high costs of these operations, the Ministry of Health and the Ministry of Finance are reluctant to reimburse these procedures at this time. This will remain an ongoing challenge.

7. *What is the greatest challenge facing your country over the next decade?*

Like many countries, Turkey is going through a significant demographic transition in regards to its population. According to the results of recent national surveys and studies conducted by the TSC, the greatest challenges facing our country in terms of cardiovascular disease over the next decade will be an increasing share of elderly people in the population as well as the heart failure

epidemic that is growing as a result. This should be placed in the context of Turkey's ongoing attempts to improve access to care and quality while controlling costs.

8. *Additional comments that you believe would be of interest to readers, including any questions you would like to see answered by others.*

We believe that the most important thing we have learned is the critical role of cooperation between professional organizations

that wish to tackle cardiovascular disease. In addition, joining with the Ministry of Health and the other governmental and non-governmental organizations and leaders has been extremely effective in turning public opinion towards these challenges. This is what is needed in order to lead to the necessary behavioural changes in Turkish society towards heart-healthy lifestyles that will have the greatest ultimate impact on patients.

## Book review

# Venous Thromboembolic Disease, volume 2 of Contemporary Endovascular Management Series

Editors: Marc G. Davies, Alan B. Lumsden  
Cardiotext Publishing  
ISBN: 978-1-935395-22-5



Nowadays, prevention and therapy of venous thromboembolism (VTE) has a great impact on the management of patients in all fields of medicine, particularly because of the increasing incidence of deep vein thrombosis (DVT) in our ageing population and because of better diagnostic and therapeutic options. *Venous Thromboembolic Disease, volume 2 of the Contemporary Endovascular Management Series*, from Cardiotext Publishing, Minneapolis, MN, USA, edited in 2011 by Mark G. Davies and Alan B. Lumsden and co-authored by 25 leading experts in the field, gives a comprehensive overview on the current knowledge of acute VTE in the upper and lower extremities (Parts 1 and 2) and in 'atypical' locations (Part 3). In particular, the thoracic inlet syndrome as a type of upper extremity thrombosis is emphasized. Part 4 contains

practical features such as appropriate reporting and coding, which are especially useful for persons involved in the US health-care system.

The book covers not only established and future endovascular management but it also presents epidemiology, pathophysiology, diagnosis, and surgical and non-invasive therapy combined with evidence-based assessments and recommendations. The controversies in treatment procedures are impressively shown. A variety of excellent photos, flowcharts, and tables help to illustrate the text. The language is precise and clear. Even complex coagulation processes are well presented, allowing easy understanding and memorizing.

No book is perfect, and therefore, some limitations became obvious. The first part contains partially redundant information concerning epidemiology, significance of the disease, and therapeutic modalities that are repeated in each introduction of a chapter and with a detailed overview. The treatment of DVT with the new anticoagulants Rivaroxaban<sup>®</sup> and Apixaban<sup>®</sup> as well as the role of duplex ultrasound findings in determining the appropriate duration of anticoagulation for DVT are lacking. In addition, some rather important short-term results of the CaVenT study about the benefit of additional catheter-directed thrombolysis vs. standard treatment for acute iliofemoral vein thrombosis dating from 2009 (*J Thromb Haemost* 7:1268–1275) are lacking. Understandably, the long-term results of the CaVenT study published online by *The Lancet* in December 2011 could not be taken in consideration at the time of printing this book edition.

In conclusion, the reviewed book is not only very suitable as a textbook for students in vascular medicine but also serves as a valuable update for experienced medical persons.

Thomas O. Meier, MD,  
Zurich University Hospital

## People's corner award

### Patrick Serruys MD receives Ray C. Fish award

Dr Serruys was presented with the annual 2011 Texas Heart Institute Ray C. Fish award for scientific achievement, for his worldwide recognition in major contributions to interventional cardiology and for the development of a drug-eluting stent. Working at the Thoraxcenter Rotterdam, the Netherlands for over a quarter of a century, Dr Serruys has pioneered the evolution of bare metal stents to drug-eluting stents. He believes these will give way to fully biodegradable drug-eluting stents during the next few years.

The award was established in 1972 by the Ray C. Fish Foundation. Ray C. Fish (1902–1962) was a leading figure in the natural gas industry and a philanthropist. After his death from heart disease, the Fish Foundation granted \$5 million to make the Texas Heart Institute a reality. The Texas Heart Institute at St. Luke's Episcopal Hospital in Houston Texas, was founded in 1962 by Denton Cooley MD, with a mission to use education, research and improved patient care to decrease the devastating effects of cardiovascular disease.

For this reason, the Institute's highest professional award recognizes those whose innovations have made significant contributions to cardiovascular medicine and surgery.

Dr Serruys joins ranks with previous recipients who include:

- Eugene Braunwald MD 1974
- Denton A. Cooley MD 1985
- Sir Magdi Yacoub FRCS 1998
- James T. Willerson MD 2009



**Dr Patrick W. Serruys, centre, receives 2011 award from Dr Denton A. Cooley (left) and Dr James T. Willerson**

## Heart disease in women II: diagnosis and treatment

### Diagnosis and treatment of women with cardiovascular disease should, and do, differ from that in men, but not always in positive ways, writes Helen Jaques

Research has shown that men and women with cardiovascular disease (CVD) sometimes undergo slightly different pathogenesis, the main difference being that women are more likely to have stiffening and narrowing of the small vessels supplying the heart,<sup>1</sup> a phenomenon known as coronary microvascular dysfunction. One would think that this difference would mean that men and women presenting with chest pain should be diagnosed and treated differently, and in some cases they should. However, the majority of women present with the same signs and symptoms of heart disease as men, yet are diagnosed and treated differently.

### How diagnosis and treatment of women currently differ from in men

The coronary microvascular dysfunction experienced more commonly by women with chest pain does not tend to show up on coronary angiography,<sup>2</sup> which is only able to detect large vessel stenosis and occlusions. As such the typical diagnostic approach of non-invasive stress testing, coronary angiography, then coronary angioplasty or bypass, is not a winner in women. "The current

paradigm overvalues the coronary angiogram and so when subjects do not have obstructive coronary disease they're not treated or are told they don't have heart disease despite having obvious signs and symptoms of heart disease, even myocardial infarction (MI)', says Dr C. Noel Bairey Merz, MD, FACC, director of the Women's Heart, Sinai Medical Center in Los Angeles. Advanced non-invasive imaging modalities, such as magnetic resonance perfusion imaging, might be better suited to diagnosing CVD in women.<sup>3</sup>

And although women are slightly more likely than men to present with atypical symptoms such as dyspnoea, the majority do present with chest pain, a fact misunderstood by many health-care professionals. 'In my experience when a woman presents, even if she is in the proper age for myocardial infarction and has typical symptoms, the doctors tend to ask and ask and find different differential diagnoses rather than take what is obvious, an MI', says Professor Eva Swahn, MD, PhD, director of Linköping Academic Research Centre (LARC) in the Division of Cardiology at Linköping University, Sweden.

Women with symptoms of CVD are also less likely to receive evidence-based treatment than are men, perhaps as a result of this poor level of diagnosis. 'If you look at big registries, for example the SWEDEHEART registry that we have in Sweden, you can see that there is a lot of difference between men and women in who receives evidence based medication', says Prof. Swahn. The GRACE (Global Registry of Acute Coronary Events) study, for example, found that women with acute coronary syndrome (ACS) who underwent coronary angiography were less likely to undergo percutaneous coronary intervention (PCI) than were men,<sup>4</sup> and the CRUSADE (Can Rapid risk stratification of Unstable angina patients Suppress ADverse outcomes with Early implementation of the American College of Cardiology/American Heart Association guidelines) study found that women with unstable angina or non-ST-elevation MI were less likely to receive cardiac catheterization and revascularization.<sup>5</sup> In addition, early aspirin,  $\beta$ -blockers, angiotensin-converting enzyme inhibitors, lipid-modifying agents, and antiplatelet and statin therapies are all underused in women.<sup>6-8</sup>

However, it's not entirely fair to blame the poor access to treatment in women exemplified by these studies on a lack of understanding or on bias in treating physicians—they are only working with what they have got. And what they have got is techniques and therapies largely tested on men. Between 1965 and 1998, only 38% of CVD clinical trials funded by the National Heart, Lung, and Blood Institute in the USA enrolled women, falling further to 27% between 1997 and 2006.<sup>9,10</sup> A study that looked at 156 of the randomized controlled clinical trials cited by the 2007 American Heart Association guidelines for CVD prevention in women found that although 135 of the 156 (86.5%) trials represented both men and women, more than 1 in 10 (12.8%) enrolled only men and only 1 randomized controlled trial enrolled only women.<sup>11</sup> Less than a third (31%) of these trials discussed sex-specific results.

Dr Merz agrees that there is definitely a bias towards men in studies of CVD. 'I think when heart disease was being identified in the 50 and 60s, it was a time where men were valued and men went to work but women weren't valued and women

didn't go to work, so researchers pretty much studied men', she says. 'It was also around the time of thalidomide and other issues where studying women came at a price, especially if they were premenopausal'. As a result 'the whole diagnosis and treatment paradigm pretty much is shaped to a male standard', says Dr Merz.

## How diagnosis and treatment of women should differ from in men

These disparities in the treatment of men and women to date suggest to a degree that women are being denied the best treatment, as a result perhaps of poor diagnosis. As such, one could argue that we need to bring in absolute treatment parity for men and women. But in some cases, it's not appropriate to give women exactly the same treatment as men. Prof. Swahn's sub-study of the OASIS-5 (The Fifth Organization to Assess Strategies in Acute Ischemic Syndromes) trial, which looked at two types of anticoagulant used for PCI in women with ACS, found that women with non-ST-elevation ACS may be harmed by receiving the same treatment as men. Women who received either of the two study drugs, fondaparinux or enoxaparin, and then were further randomized to a routine early invasive strategy had a higher mortality rate than women who received a selective invasive strategy only if symptoms or signs of angina occurred.<sup>12,13</sup> Women also have higher mortality and complications after PCI, such as bleeding and vascular complications.<sup>8,14,15</sup> In addition, there are some differences in pharmacokinetics that mean women should receive different treatment, in part owing to the fact that women have lower body weight but higher fat and also due to sex differences in gastric emptying and glomerular filtration rate.<sup>16</sup>

Whether men and women should indeed be treated differently is not entirely clear, says Prof. Swahn. 'I'm not sure it's the gender *per se* that makes up whether we should treat them differently', she says. Age could be a bigger factor, because women with heart disease are usually older, and changing the dosages of drug used on the basis of height and weight could be a better approach than moderating dosage on the basis of gender. 'In a way I don't want to differentiate on the basis of age or gender I want to differentiate individually', she says. 'You have to think in that way: everything is not only gender or sex, so many other confounding factors affect how you should treat or manage the patient in front of you'.

## The future for women with cardiovascular disease

In 2011, the American Heart Association published new guidelines on preventing CVD in women,<sup>17</sup> the most recent update since 2007. These new guidelines expand risk stratification to lifetime risk, which Dr Merz thinks will help identify women who have a low-risk score according to alternative approaches such as the Framingham risk score, but will still go on to die of CVD. Another way to improve the diagnosis and treatment of women with heart disease would be to do more research, in particular studies with a gender analysis pre-specified in the protocol, says Prof. Swahn. 'I think that we should really do more research and always



always, have a gender perspective on whatever you look at', she says.

What also is needed is to improve the way we use known and established therapies, says Dr Merz. The 'Get with the Guidelines' programme in the USA is one example of maximizing the use of existing therapies to close the sex and gender gaps in CVD. 'What we've been able to demonstrate is that when you enforce guidelines, the lives that you save are female lives', she says. 'Women are much less likely to be treated with guideline therapy I think because of these diagnostic uncertainties. If you just do guidelines women get the treatment that we already know works'.

Helen Jaques, freelance medical writer and editor

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