Cardiovascular Disease Management in Ireland

Sean Power, TD, minister of state at the Department of Health and Children (upper picture), and Emer Shelley, MD, MSc, FRCPI, National Heart Health Advisor, explained to Barry Shurlock, MA, PhD, how Ireland is tackling cardiovascular disease, and its influence in the European Union.

Against this background, key questions faced regularly by Sean Power, TD (Irish Member of Parliament), minister of state in the Department of Health and Children (DOHC), Dublin, include: How best can a small country improve its cardiovascular health? How much should be invested in public health and how much in medical science and technology? And does the EU dimension make any difference? Commenting on progress to date, Mr Power said, “In relation to our European colleagues, we’re certainly not ‘top of the class.’ We have improved considerably, even in the past few years, but we’ve a lot of work to do.”

Epidemiological data for Ireland show that all-cause, all-age mortality from coronary heart disease (CHD) has been roughly halved in both sexes over the period 1970–2002 (see Figure). The fastest rates of improvement are seen in the lower age groups. However, CHD mortality in men below the age of 65 years is still about 50% higher in Ireland than the average EU rate (based on 15 member states), and is about 35% higher than average for women.

In the EU league table for CHD, Ireland ranks slightly better than Finland and slightly worse than Malta and the United Kingdom, but it still has rates more than double those of France, which heads the league. In contrast, Ireland has fared better with cerebrovascular mortality. This has fallen by a factor of 3 in the period 1970–2002. France is also top of the league for stroke, but Ireland has only a slightly worse record and is sandwiched between Germany and Spain.

Against this backdrop, Sean Power and his colleagues are confidently managing a raft of measures to improve cardiovascular health, under such slogans as “Ireland needs..."
change of heart.” A key step was taken in July 1999 when the Taoiseach (Irish Prime Minister) Bertie Ahern, TD, launched an ambitious national strategy to reduce cardiovascular disease (CVD) by making an impact on virtually every aspect of daily living. Its 211 recommendations read like the subheadings of a paper on CVD risk factors.

Embedded in the strategy was legislation that made Ireland the first sovereign state to impose a smoking ban in the workplace, namely the Public Health (Tobacco) Act 2002. Commenting on the smoking ban, Minister Power said, “The action we took on 29 March 2004 has been a resounding success.” Measurements of serum carbon monoxide in bar workers, using Northern Ireland as a control group, suggest that the ban has been effective. Sales of tobacco products in the first year also fell by 15% (though the official figures are confounded by black market sales), but the Irish government lost €125 million in related tax revenues.

The main author of the cardiovascular health strategy, aided by leading cardiologists in Ireland, was National Heart Health Advisor Dr Emer Shelley, a specialist in public health medicine. She trained at the London School of Hygiene in the United Kingdom and was formerly the medical director of the Irish Heart Foundation, a national voluntary organisation.

The CVD initiative followed an earlier campaign for tackling cancer in Ireland and received strong ministerial support. Priorities were identified from international evidence, especially from within Europe, and the all-embracing strategy was given a budget of €54 million (later extended to €57 million), plus a provision of €5 million for nicotine replacement therapy. A major part of the money has been spent on health promotion, but 29 new consultant cardiologists and their attendant staff have been recruited, bringing the total number of cardiologists in Ireland to 48.

Progress reports show that most of the 211 recommendations of the strategy have been implemented. But monitoring the effects of such a wide-ranging plan is a statistical nightmare, and it would be simplistic, in the view of Dr Shelley, to expect any obvious effects such as a steepening of the slopes of relevant curves. Apart from specialist assessment, there thus seems no way to judge whether the Irish government’s expenditure of €57 million, and the plethora of new agencies it has spawned, has been effective.

Dr Shelley believes, however, that the Irish strategy, together with a much greater Europe-wide awareness of cardiovascular risk factors, has had a significant effect on reducing CVD, especially among the higher socioeconomic groups. But a great challenge still exists with the less educated and the less well-off, who in her view need to be approached in a “very sympathetic way” to avoid creating anxiety and guilt.

Although the major thrust of the cardiovascular health strategy has been in public health, there have been clinical benefits. Additional chest pain clinics and catheter laboratories have been opened, including a mobile catheter laboratory to tackle the problems of operating such diagnostic facilities in remote locations. A telemetry link to a distant hospital elsewhere allows angiograms to be viewed and treatment options recommended in a specialist centre. These arrangements were first pioneered in Scotland and have now proved successful in the remote northwest corner of Ireland, said Dr Shelley.

Balancing resources for percutaneous coronary intervention and thrombolysis for acute coronary syndromes is another area where Irish policy is actively under review, with the aim of equating the needs of those in major urban areas with others in rural locations.

Perhaps the most significant general outcome of the cardiovascular health strategy has been that it showed how cardiologists and politicians can work together. During the Irish presidency of the EU of January–June 2004 (the presidency rotates in turn to each member country), Irish politicians chose the improvement of cardiovascular health throughout Europe as one of their objectives.

To this end, under the guidance of Ian Graham, FRCPI, of the Adelaide, Meath and National Children’s Hospital, Tallaght, South Dublin, and others, Ireland produced a template for a Europe-wide system for reporting information referred to as the Cardiology Audit and Registration System. And, with the advice of Peter Kearney, MD, FRCPI, consultant cardiologist at Cork University Hospital and others, it developed the Promoting Heart Health Consensus that was adopted as policy by the EU Council of Ministers.

All this was achieved in association with the European Society of Cardiology (ESC), whose own Heart Plan for Europe was a key source of ideas. The Irish minister involved in these matters, Michéal Martin, TD, also had a leading role in progressing the Public Health (Tobacco) Act 2002 in Ireland. In 2004, he received the ESC Gold Medal, which is the highest award of the society, from Jean-Pierre Bassand, MD, FESC, professor of cardiology and cardiovascular medicine at the University of Besançon, France, who was then president of the ESC.

Dr Bassand explained that the award “is reserved for people who have made a significant contribution to the fight against cardiovascular disease, including former Nobel Prize winners, and other prominent figures in the field of cardiovascular medicine.” What is interesting in this instance is that the award supports the view that combating CVD requires both medical and political inputs in equal measures.

Barry Shurlock is an independent medical journalist.

Reference
Spotlight on Pierre Corvol, MD

Dr Pierre Corvol is an eminent scientist who played a key role in the development of drugs acting on the renin-angiotensin system. Emma Baines, MSc, talked to him about his achievements.

Millions of patients worldwide benefit from antihypertensive drugs that act on the renin-angiotensin system. The development of these drugs would not have been possible without the work on the biochemistry and the molecular biology of renin carried out by Dr Pierre Corvol, who is a professor and director of the Vascular Pathology and Renal Endocrinology Unit at the Institut National de la Santé et de la Recherche Médicale (INSERM) and chair of Médecine Expérimentale at the Collège de France in Paris.

Dr Corvol first started working on the renin-angiotensin system in 1970 when he returned to Paris from the United States. He had been there a year doing postdoctoral research at the National Institutes of Health in Bethesda, Md. “At that time I was working on sex hormones, and when I came back, I decided to go into hypertension research because I was attracted by the area. I thought that with my training as an endocrinologist maybe I could bring something to it,” he said.

At that time, very little was known about the renin-angiotensin system, other than that it probably played a role in the regulation of blood pressure. But this was exactly why it appealed to Dr Corvol. Together with his colleague Joel Ménard, MD, of the Hôpital Broussais, Paris, France, he set up a lab and started on the work.

Using the new radioimmunoassay techniques he had learnt in the United States gave Dr Corvol’s laboratory a competitive edge, as these tests were not being used widely in Europe. Even so, he recalls that progress on the renin research was slow at first. “It was very difficult because it was such a big task,” he said. “Renin is present in a minute quantity in the kidney, and in the beginning there was really no way to purify these tiny amounts of protein. So we started large-scale purification using hog renin.”

Dr Corvol’s team then benefited from a stroke of luck: “In the clinic, I had the chance to see several patients with renin tumours, so we were able to extract and purify renin from them.” Using this human renin, his research team was the first to produce monoclonal antibodies, and with them the first renin assay.

Then, in the late 1970s, when cloning was initially used in hormone research, Dr Corvol’s team was the first to use the technique in cardiovascular research, when they managed to clone renin successfully. It was in recognition of this breakthrough that he and his colleagues Dr Ménard and Tadashi Inagami, PhD, DSc, of the Vanderbilt University School of Medicine in Nashville, Tenn, were awarded the Ciba award for hypertension research in 1985.

In the course of his career, Dr Corvol has received many awards in recognition of his discoveries, including the Humboldt Award in 1993 and the R. Tigerstendt Award in 1998. He was also rewarded with the Commander of the National Order of Merit, and was made an Officer of the Legion of Honour, but he says that the Ciba award is the one that meant the most to him. “It is the biggest recognition that you can get in the world for work in hypertension. I am very proud of having received it,” he said.

More recently, the focus of his research has switched from the role of the renin-angiotensin system in hypertension to its possible role in haematopoiesis and angiogenesis. Around 80% of the work in his laboratory is now oriented toward research into angiogenesis.

Among the most interesting recent discoveries his research team has made is that the angiotensin system appears to be involved in the early as well as the adult phase of haematopoiesis, suggesting a possible new therapeutic role for drugs such as angiotensin-converting enzyme (ACE) inhibitors and angiotensin-2 antagonists in cancer patients. “If you block haematopoietic stem cells early in their cycle, then you can protect them during radiation,” Dr Corvol explained. “So it may be that by treating patients with an ACE inhibitor or an angiotensin-2 antagonist during chemotherapy or radiotherapy, you may protect them from bone marrow injury.”

Throughout his career, Dr Corvol has split his time between research and his clinical work. Since 1976, he has been based at the Broussais Hospital in Paris, where he was director of the Service of Arterial Hypertension from 1986 to 1999. Although he has cut down on his clinic time since 2000, he says that he will never give it up altogether for the sake of research. “I’m a sort of hybrid,” he says. “It can be quite difficult to be a hybrid, because you are never recognised as a true basic scientist by scientists, and sometimes you are not considered a true doctor by your medical colleagues, either. But you have to take on this role if you want, like me, to try and do both.”
A New Cardiovascular Research Centre

Anna Dominiczak, OBE, MD, FRCP, is the director of a new research facility in Scotland. She spoke to Judy Ozkan, BA, about the importance of this venture.

A new £11 million cardiovascular research centre was built in Glasgow, Scotland, recently and it opened on 25 April. Anna Dominiczak, OBE, MD, FRCP, is British Heart Foundation professor of cardiovascular medicine and the director of the new Glasgow Cardiovascular Research Centre, University of Glasgow. Dr Dominiczak has one main ambition for this cutting-edge facility, and that is to change the perception of Scotland from being infamous as the heart disease capital of Europe to being famous for leading the fight against it.

The new centre aims to highlight Scotland’s less well-known role as an international centre of excellence in cardiovascular research, and as a key player in the fight against cardiovascular disease. The overall aim is to consolidate, on a single site, cardiovascular research effort ranging from the molecular genetic basis of cardiovascular disease through physiology and pathophysiology to patient-centred studies. This wonderful facility will also bring more medical talent to the country and create jobs in the area.

Almost 1200 donors joined with the University of Glasgow and the BHF to make the building of the centre possible. The centre has already begun to make headlines with a ground-breaking research project led by Sandosh Padmanaban, MD, MrCP, a University of Glasgow researcher. In January, he was awarded a fellowship of over £256 000 from the BHF to map a gene location that may explain why certain blood pressure-lowering drugs are not effective for some patients.

The centre will have a national and international impact upon areas of health and welfare, bringing direct benefits in prevention, diagnosis, and treatment. It will also provide the west of Scotland with a base committed to targeting and combating the many problems associated with heart disease.

Emma Baines is a freelance medical journalist.
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