European Cardiovascular Disease Statistics 4th edition 2012: EuroHeart II

The statistics and ever-increasing cost of cardiovascular disease in Europe are discussed, with the full report in this issue of European Heart Journal

Cardiovascular disease (CVD) remains the leading cause of death in Europe, and places a heavy burden on the population in many ways, including through high morbidity, pressure on the health system, and substantial costs to the economy. Accessible, up to date statistics on the burden, distribution, causes and effects of CVD, coronary heart disease (CHD), and stroke in Europe are a key tool to assist health professionals, policy makers, medical researchers and others, to understand and act on the many complex issues in the prevention and management of CVD.

The EuroHeart II project, led by the European Heart Network and the European Society of Cardiology (ESC) received co-funding from the European Union (EU) in the framework of the Health Programme, to report on and analyse the current situation with regard to cardiovascular and circulatory diseases in Europe.

As part of this work, researchers at the British Heart Foundation Health Promotion Research Group at the University of Oxford compiled the fourth in a series of major Europe-wide publications on CVD statistics: European Cardiovascular Disease Statistics 2012. The report includes chapters on mortality, morbidity, treatment, behavioural factors associated with CVD (smoking, alcohol, diet, and physical activity), pathophysiological risk factors (blood pressure, cholesterol, overweight and obesity, diabetes), and the economic costs of CVD in the EU. The accompanying paper in this edition of the European Heart Journal provides a summary of the main findings of the report, and an update of the data where possible. The full European Cardiovascular Disease Statistics 2012 report is available for download from the ESC website: http://www.escardio.org/about/what/advocacy/EuroHeart/Pages/2012-CVD-statistics.aspx.

The report showed that despite major improvements in recent decades, CVD remains the leading cause of death in Europe. The most recent available data show that CVD caused almost 4.1 million deaths in Europe, and CHD alone caused 1.8 million. Across Europe, 42% of all deaths among men were caused by CVD, as were 51% of all deaths among women, more than any other major cause. CVD remains the leading cause of death in all European countries among women, and in all but nine countries among men for the most recent year of data. Importantly though, despite the best efforts in prevention and early management of CVD and contributing risk factors, CVD cannot be considered a disease of old age in Europe, with 31% of deaths before age 65 among men and 27% deaths before age 65 among women caused by CVD. Inequalities in age-standardized death rates from CVD and CHD between European countries were vast, with up to 20-fold differences in death rates between the highest and lowest rates in Europe.

Despite a background of falling mortality rates, it is also clear that incidence of CVD and rates of morbidity remain very high, although data are not as comprehensive as we might ideally prefer. Hospital discharge rates do give an indication of the burden that a disease places on European health systems, and indirectly, an approximation of rates of morbidity, although these cannot be considered a true indicator of incidence. Discharges for CVD increased by ~13% between 2000 and 2010 for the whole of Europe, and remained steady within the EU.

The report represents an important resource for professionals from a wide range of fields, yet its production also highlights one of the major issues in CVD epidemiology in Europe, namely, a lack of high quality, up to date and comparable data. Mortality data are among the strongest data available, and are the most basic of all health indicators; however, even these have limitations, such as irregular updating of the World Health Organization’s international databases, and inconsistencies in coding and data collection in some countries. We also still know very little about the diets of Europeans, how these compare among countries, and how they differ between socio-demographic groups within countries. Efforts by the ESC and others to compile and standardize data collections across Europe are underway, and are to be commended for taking on this difficult task, but there is a long way to go before we can, as a professional community, say with certainty that we truly understand the extent and distribution of the burden of cardiovascular disease, its determinants and consequences across Europe.
The annual European Heart Journal (EHJ) Elite reviewers’ award presentation ceremony was held during the ESC Congress in Amsterdam. Award certificates were presented by Prof. Thomas F. Lüscher, EHJ editor-in-chief, who expressed his appreciation to the group for continued dedication throughout 2012.

**Top 5 Elite Reviewers of the year**

Prof. **Johann Auer**, MD FESC FACC, Cardiology and Intensive Care, General Hospital Braunau and Cardiology, General Hospital Linz, Austria. His interests include atrial fibrillation after cardiac surgery, effect of stent type on clinical outcomes after percutaneous coronary intervention, efficacy of residential cardiac rehabilitation, immune response after implantation of bio-prostheses, arterial stiffness, wave reflections, and central blood pressure response to antiplatelet therapy.

Prof. **Jeroen J. Bax**, MD PhD, Cardiology, Leiden University Medical Centre, Netherlands. Personal classifications registered are: arrhythmias, atherosclerosis, computed tomography, echocardiography, MRI, nuclear cardiology, and valvular heart disease.

Prof. **Luigi M. Biasucci**, MD FACC FESC, Cardiology, Catholic University of the Sacred Heart, Rome, Italy. His key areas of interest include: pathophysiology and treatment of acute coronary syndromes, inflammation, and biomarkers.

Prof. **Davide Capodanno**, MD PhD, Ferrarotto Hospital, University of Catania, Italy. His key areas of interest include: thrombosis, haemostasis, and interventional cardiology.

Prof. **Paul Erne**, MD PhD, Cardiology, Luzern Canton Hospital, Luzern, Switzerland. Key areas of interest include: myocardial infarction, silent ischaemia, non-ischaemic chest pain, and hypertension.

Fernando **Alfonso**, MD PhD FESC, Clínico San Carlos, University Hospital. Madrid. Spain. His key areas of interest include: in-stent restenosis, intracoronary diagnostic techniques, stent thrombosis, randomized trials concerning PCI and DES and drug-coated balloons.

Prof. **Thomas Bartel**, MD, assistant professor, Medical University Innsbruck, Austria. His key areas of interest include: cardiovascular interventions, structural heart diseases, echocardiographic guidance of percutaneous interventions, and intracardiac echocardiography.

Prof. **Joshua I. Barzilay**, MD, Kaiser Permanente Georgia and Emory University School of Medicine, Atlanta, Georgia, USA. His key areas of interest are: diabetes and cardiovascular disease.

Prof. **Christoph Bode**, MD FESC FACC, Heart Centre Freiburg University, Germany. His key areas of interest include antithrombotic therapy in cardiovascular diseases.

Giovanni **Boffa**, MD, clinical researcher, University of Padova, Italy.

Prof. **Edoardo Casiglia**, MD, University of Padua, Italy. Personal classifications listed as atherosclerosis, echocardiography, epidemiology, genetics, heart failure, hypertension, myocardial disease, peripheral circulation, pharmacology and pharmacotherapy, prevention, stroke, thrombosis, and platelets.

Prof. **Tommaso Gori**, MD PhD, Cardiology, University Medical Centre Mainz, Germany. His key areas of interest include endothelial function and interventional cardiology.

Prof. **Kurt Huber**, MD, Wilhelmenspital, Vienna, Austria. His key areas of interest include: thrombus formation in acute coronary syndrome and atrial fibrillation, antithrombotic strategies, and STEMI networks.

Prof. **Philippe H. Kolh**, MD PhD, University of Liège, Belgium. His key areas of interest include: cardiovascular physiology, myocardial revascularization, and health economics.

Prof. **Alexander Kharlamov**, MD, De Haar Research Foundation, Rotterdam, the Netherlands. His key areas of interest include interventional cardiology and nanomedicine.

Prof. **Koon-Hou Mak**, MD, Mak Heart Clinic, Gleneagles Medical Centre, Singapore. His key areas of interest include: acute coronary syndromes, diabetes in cardiovascular disease, cardiovascular epidemiology, and novel therapeutics in cardiovascular disease.

Prof. **Isabella Sudano**, MD PhD, University Hospital Zurich, Switzerland. Her key areas of interest include: arterial hypertension; pharmacotherapy and renal nerve ablation; sympathetic nervous system activity; evaluation of endothelial function; preventative medicine.

Prof. **Stefan Toggweiler**, MD, Luzern Canton Hospital, Switzerland. His key areas of interest are transcatheter aortic valve implantation, Mitraclip therapy, and acute coronary syndromes.

Prof. **Alec Vahanian**, MD, Hôpital Bichat, Paris, France. His key area of interest is valvular disease.
Top EHJ Editors 2012

During the EHJ annual dinner at the ESC Congress 2013 in Amsterdam, Prof Thomas F. Lüscher expressed his appreciation to all the European Heart Journal Reviewers. He spoke of their tireless work and unfailing support throughout the year which contributed to the success of the EHJ reaching a new high Impact Factor of 14. Now the number 2 cardiology journal worldwide.

Two Top Editors at the dinner were presented with awards:

With the continued enthusiastic and expert support from its Reviewers the EHJ looks forward to increasing its Impact Factor further and becoming an even stronger force in global cardiology.

Highlights from European Society of Cardiology Congress 2013

Atrial fibrillation: anticoagulants

The use of oral anticoagulation (OAC) for stroke prevention in atrial fibrillation (AF) has not improved in the last 10 years, according to the first results of the Atrial Fibrillation General Pilot Registry presented by Prof. Gregory Lip (UK).

The registry is part of the European Society of Cardiology (ESC)’s EORP programme and includes over 3000 patients in nine countries. Findings were compared with Euro Heart Survey data from 10 years ago. Use of OAC for stroke prevention remained suboptimal and was broadly similar to 10 years ago. Approximately 65% of patients with AF received OAC for stroke prevention [usually vit. K antagonists (VKA)]. Of those anticoagulated, novel oral anticoagulants were used in <10% of patients. Independent predictors of oral anticoagulant use were younger age, high CHA2DS2-VASc score, BMI, hyperthyroidism, and prior stroke—while predictors of less use were older age, female gender, high systolic BP, high HAS-BLED score, and chronic kidney disease.

As with the Euro Heart survey, common comorbidities in AF patients remain hypertension, coronary disease, and heart failure (HF). Lone AF was evident in only ~7% of patients, and importantly, asymptomatic AF is a common occurrence.

Prof. Lip said: ‘In many cases, asymptomatic AF is first diagnosed when patients present with a complication, for example stroke or heart failure’.

Of the various antiarrhythmic drugs, amiodarone remained the most commonly used (~25% of patients). Catheter ablation was used in ~20% of patients with paroxysmal AF.

Patients will be followed annually for 3 years. The AF General Long Term Registry starts in October 2013.
Atrial fibrillation: personalized management

Personalized management is the only way to close the mortality gap for patients with AF, according to a consensus paper presented by Prof. Paulus Kirchhof (UK) at an ESC Congress 2013 session on personalized cardiology. ‘Personalized management of atrial fibrillation: Proceedings from the fourth Atrial Fibrillation competence NETwork/European Heart Rhythm Association consensus conference’ was also published online in EP-Europace.

Kirchhof said: ‘With the introduction of oral anticoagulant therapy we can prevent about two-thirds of all strokes in AF. But patients with AF still have a higher mortality compared to their age and cardiovascular risk matched peers without AF, and we are not able to reduce that mortality by much even when we apply all the evidence based therapies’.

The fourth AFNET/European Heart Rhythm Association (EHRA) consensus conference was convened to discuss how to identify the underlying main pathophysiology of AF in individuals so that more targeted therapies could be developed to close the mortality gap.

A certain degree of personalization is already practiced in AF. Stroke risk scores based on clinically measurable risk factors aid decisions on anticoagulant therapy, while the severity of AF symptoms helps to determine rhythm control therapy.

The consensus paper identifies three main ways to better characterize the underlying cause of AF in order to improve treatment: the ECG; imaging, especially echocardiography and MRI; and biomarkers.

A new taxonomy of AF is proposed based on its pathophysiology. Prof. Kirchhof said: ‘The classification is imperfect because there are overlaps between categories and the majority of AF patients fall into the “unclassified AF” group. But it illustrates that we need a better understanding of why AF develops in an individual patient before we can classify them based on biomarkers, imaging or ECG, in addition to clinical parameters, and develop better therapies’.

Arrhythmia therapies and cost

The financial crisis has hit access to arrhythmia therapies according to an analysis of six editions of the EHRA White Book. The EHRA White Book reports on the current status of arrhythmia treatments in the 55 ESC member countries and has been published yearly since 2008. The trend analysis was published in a dedicated supplement of EP-Europace.

Prof. Fernando Arribas (Spain), EHRA White Book coordinator, said: ‘Our trend analysis last year showed that increasing numbers of patients were receiving pacemakers (implantable pulse generators; IPGs), implantable cardioverter defibrillators (ICDs), cardiac rhythm therapy (CRT) devices and catheter ablation. But now the slope of growth is flatter and even negative in some countries, probably because of the financial crisis’.

Reduced expenditure on health care was associated with poorer use of therapies, but finances were not the sole driver of disparities in access. Numbers of hospitals and beds per 100 000 inhabitants were at extremes of the range in Germany (825) and Sweden (273) despite both being rich countries. Some countries in Eastern Europe had implant rates for ICDs and IPGs that far exceeded those of some Western countries.

An analysis of selected Eastern and Central European countries estimated the additional number of centres needed to reach mean ESC and EU levels. The gaps were mainly due to the lack of infrastructure and low referral rates. Ukraine had the highest needs. To meet ESC country levels, it needed 156 IPG, 105 ICD, 84 CRT, and 46 ablation centres. To reach EU levels, it needed 235 IPG, 156 ICD, 126 CRT, and 65 ablation centres.

A new section on lead extractions revealed that these were far below expected levels.

Prof. Angelo Auricchio (Switzerland), EHRA past-president, said: ‘Access to arrhythmia treatments is slowing down and even declining in some countries, which may be due to the economic crisis in Europe’.

Risk factors

Adverse lifestyle trends are countering improvements in cardiovascular risk factor management in coronary patients, according to a EUROASPIRE time trend analysis presented at ESC Congress 2013. It included the nine countries in surveys II (1999–2000), III (2006–07), and IV (2012–13).

Smoking prevalence stayed the same (21% in 1999/2000, 19.9% in 2006/7, 18.2% in 2012/13; P = 0.55) and remained highest in patients <50 years.

The prevalence of obesity increased across the three surveys (31.9, 33.3, and 38.5%) as did the prevalence of central obesity (50.5, 50.5, and 57.2%).

The prevalence of diabetes increased across the three surveys (18.5, 23.8, and 27.2%). Glycaemic control in patients with diabetes remained unchanged, with only 30% of patients achieving the therapeutic threshold for fasting glucose (<7 mmol/L).

The use of cardioprotective drugs increased between surveys II and III, but there was no significant change between surveys III and IV.

The prevalence of hypertension dropped by 8% from survey III to IV, while the prevalence of very high BP, systolic ≥160 mmHg and/or diastolic ≥100 mmHg, dropped significantly across the three surveys (21.9, 16.8, and 12.8%). Therapeutic control of BP in patients using BP-lowering drugs improved significantly with 55% of patients below target in survey III.

The prevalence of raised total cholesterol (≥4.5 mmol/L) decreased (77.0, 40.6, and 32.8%) as did the prevalence of elevated LDL cholesterol (≥2.5 mmol/L) (78.0, 42.9, and 33.5%). The proportion of patients on lipid-lowering drugs who met the LDL cholesterol target (<1.8 mmol/L) increased even though use of these drugs stabilized between surveys II and III. However, 75.3% of patients still did not reach the target.

Prof. David A. Wood (UK) said: ‘Our analysis highlights the pressing need for modern preventive cardiology programmes with lifestyle change at their core and not simply writing prescriptions for drugs’.
Heart failure

Drug treatment for chronic HF is acceptable, but device implantations are still too low, according to the latest ESC Heart Failure Long-Term Registry results presented by Prof. Aldo P. Maggioni (Italy). The results also revealed large heterogeneity in treatment for acute HF.

During May 2011–April 2013, 12 440 patients were enrolled (40.5% with acute HF and 59.5% with chronic HF) from 211 cardiology centres in 21 European and Mediterranean countries. In patients hospitalized with acute HF, use of i.v. inotropes and nitrates was not in line with the guideline recommendations. Prescription rates of all recommended oral medications significantly increased at discharge compared with pre-admission.

In ambulatory patients with chronic HF, RAS blockers (including ACE inhibitors and ARBs), beta-blockers, and MRAs were prescribed in 89.2, 88.9, and 59.3% of cases. But when reasons for non-adherence were considered, real under-treatment occurred in 5.9, 4.6, and 14.4% of cases. In most cases the reason for non-prescription was a contraindication or documented intolerance.

Less than one-third of patients received the recommended target dosage of these drugs: 29.3% for ACE-inhibitors, 24.1% for ARBs, 17.5% for beta-blockers, and 30.5% for MRAs. A reason for not achieving the target dose was reported in almost two-thirds of the remaining cases and included intolerance and ongoing drug uptitration.

In ambulatory patients with chronic HF, ICD and CRT device implantation was not planned, despite being clinically indicated, in 44 and 40% of patients, respectively. The reasons for non-implantation when clinically indicated were doctor uncertainties on the indication, patient refusal, or logistical/cost issues.

Reperfusion therapies

Substantial numbers of patients, in particular in Eastern and Southern Europe, do not receive any reperfusion therapy after STEMI, according to a Stent for Life (SFL) survey of 37 ESC countries during 2010 and 2011 presented by Prof. Steen Kristensen (Denmark). The problem of no reperfusion therapy was greatest in Bosnia Herzegovina, Bulgaria, Serbia, and Ukraine (e.g. in Ukraine this number was 526 per million inhabitants).

The number of PPCI per million inhabitants ranged from 23 in Saudi Arabia to 938 in The Netherlands. PPCI was the dominant reperfusion strategy in 33 countries, but thrombolysis was still the treatment of choice in four countries (Bosnia Herzegovina, Cyprus, Greece, and Serbia).

All countries reported large increases since 2007–08 in the number of catheterization laboratories providing PPCI services 24 h a day, 7 days a week. The average population size served by a single-PPCI centre with 24/7 services ranged from 31 300 inhabitants per centre in San Marino to 6 533 000 inhabitants per centre in Saudi Arabia.

As previously reported at EuroPCR, the survey reveals that PPCI use increased dramatically between 2007 and 2011 in the six countries enrolled in the SFL Initiative in 2009. During this period, PPCI use increased from 23 to 57% in Bulgaria, 33–64% in France, 9–32% in Greece, 19–44% in Serbia, 30–50% in Spain, and 8–78% in Turkey. As PPCI use rose in the six countries, the percentage of patients not receiving any reperfusion therapy decreased.

Kristensen concluded: ‘The SFL Initiative will continue to help countries identify their own barriers to implementing guidelines (e.g. poor access to emergency health services, economic factors or lack of trained doctors) and find ways of increasing their use of life saving PPCI’.

Statins, cholesterol, and dementia

Research on statins included the Ibaraki Cardiovascular Assessment Study (ICAS), a registry of 2238 patients from 12 hospitals in the Ibaraki region of Japan, who between 0 and 1 month underwent PCI. Aggressive treatment with statins reduced the risk of subsequent cardiovascular events in patients with CAD even if they had very low LDL-C levels. Dr Emi Nakano said: ‘We speculate that statins prevent the enlargement of atherosclerotic plaques and plaque disruption in these patients’.

Dr Tin-Tse Lin (Taiwan) revealed that high doses of statins prevent dementia in older people and high potency statins had the strongest protective effects. The analysis of 57 669 patients found a three-fold decrease in the risk of developing dementia with the highest total equivalent dose of statins. Lin said: ‘It was the potency of the statins rather than their solubility (lipophilic or hydrophilic) which was a major determinant in reducing dementia’.

Statins lower the rate of cataract by 20%, according to research by Prof. John B. Kostis (USA). The risk of cataract was reduced by 50% in younger individuals (in their 40 s) and with longer duration of therapy (e.g. up to 14 years). The meta-analysis of 14 studies included 2 399 200 persons and 25 618 cataracts. Average duration of treatment was 54 months, and average age was 61. Absolute risk reduction was 1.4%.

Type of healthcare reimbursement system influences achievement of cholesterol targets, according to a subanalysis of the Dyslipidemia International Study. Germany operates a ‘restrictive’ system and just 42% of patients achieved the target of LDL-C < 100 mg/dL compared with 79.8% of patients in the UK where an incentive system is used. Potent statins were less often used and daily dosages were significantly lower in Germany than in the UK, independent of the statin used.

Abstracts on daily life

Levels of several cardiovascular risk factors (such as BP, waist circumference, and total cholesterol) are higher in winter (January to February) and lower in summer (June to August) compared with the annual average, according to an analysis of > 100 000 subjects in seven countries. Dr Pedro Marques-Vidal (Switzerland) said: ‘We are conducting another study to find out if the seasonal pattern reverses in the southern hemisphere’.

Cold weather leads to more heart attacks, according to research by Prof. Marc Claeyes (Belgium). The multifactorial study of nearly 16 000 patients found no relationship between heart attacks and air pollution. AMI increased by 7% for each 10°C decrease in minimal temperature. Claeyes said: ‘The triggering effect of low temperature was also present outside the winter period. Apparently,
smaller differences in temperature between indoor and outdoor can also precipitate AMI'.

Physical activity decreases the risk of sudden cardiac death (SCD) in unfit men, according to research in 2656 men aged 42–60 years from the Kuopio Ischemic Heart Disease Risk Factor Study. Low cardiorespiratory fitness (CRF) and high leisure-time physical activity (LTPA) did not significantly increase SCD risk compared with high CRF and high LTPA. Dr Jari Laukkanen (Finland) said: ‘A higher amount of leisure-time physical activity might reduce the risk of SCD among men with low cardiorespiratory fitness’.

Listening to favourite music improves endothelial function in CAD patients, according to research by Prof. Marina Deljanin Ilic (Serbia). Endothelial function was measured in 74 patients with stable CAD by the stable end products of nitric oxide, asymmetric dimethylarginine, symmetric dimethylarginine, and xanthine oxidase. Deljanin Ilic said: ‘The combination of music and exercise training led to the most improvement in endothelial function. Improvements in endothelial function were associated with significant improvements in exercise capacity’.

**Obesity**

Research included the FAST-MI 2005 registry which investigated associations between BMI and waist circumference with 5-year mortality in 3670 patients from 223 French institutions admitted to intensive care for AMI and discharged alive. High waist circumference, severe obesity, and underweight were associated with the greatest risk of death. Prof. Tabassome Simon (France) said: ‘It is not good to be too lean or too fat, but it is worse still when you have a big belly’.

Metabolically healthy women have the same CVD risk regardless of their BMI, according to a study of 261 489 young fertile women. Dr Michelle Schmiegelow (Denmark) said: ‘Because obesity markedly increases the risk of developing metabolic disorders, these women most likely have a window of opportunity to lose weight and change their prognosis’. Metabolically unhealthy, overweight women had an almost seven-fold increased risk of heart attack and a four-fold increased risk of stroke.

Low BMI is a risk factor for CVD in hypertensive patients with diabetes, according to data on 1105 patients from the Nagoya Heart Study. The findings provide evidence for an obesity paradox in hypertensive patients with glucose intolerance. Dr Takanori Nagahiro (Japan) said: ‘The lowest BMI group showed the highest CVD incidence and the highest BMI group had the lowest CVD incidence’.

A further Danish study showed that being underweight increases the death risk of women with CAD by two-fold. Dr Aziza Azimi suggested that underweight women with CAD should gain weight to reduce their risk of death.

**Smoking**

Research featured the CONFIRM registry of 13 372 patients from nine countries which showed that quitting smoking reduces the risk of heart attack and death to levels of never smokers. Rates of heart attack or death were almost two-fold higher in active smokers compared with never smokers. Past smokers had the same rates or heart attack or death as never smokers, despite having a higher prevalence, extent, and severity of CAD.

STEMI incidence fell in Southern Switzerland after implementation of the smoking ban in public places. Incidence in Canton Ticino reduced by an average of 21.1% between 2004–07 and 2007–10. The greatest impact was seen in women ≥65 years old.

Smokers who survive to 70 still lose an average of 4 years of life, according to findings in 7000 older men (mean age 77 years) from the Whitehall study of London civil servants tracked from 1997 to 2012. Average life expectancy from age 70 was ≏18 years in men who had never regularly smoked, 16 years for men who gave up smoking before age 70 but only ≏14 years in men still smoking at age 70.

Research from Dr Yasuaki Dohi (Japan) showed that 8 weeks of smoking cessation reverses the endothelial damage caused by smoking. Serotonin remained elevated, suggesting 8 weeks of cessation is insufficient to reverse the risk of myocardial infarction. The study included 27 apparently healthy male smokers aged 40 ± 8 years and 21 age-adjusted non-smokers (40 ± 7 years).

**Stroke research**

CHADS2 stroke risk scores 0 or 1 assigned more than one-third of patients in AF with stroke to low or intermediate risk not mandating OAC. In contrast, aCHA2DS2-VASc score of 0 identified a subgroup of patients with very low stroke risk unlikely to benefit from anticoagulation treatment. The analysis was based on the prospective registry of the German Competence Network on Atrial Fibrillation (AFNET) which started in 2004–06 and includes 9575 patients with AF.

Preliminary findings from the STROKESTOP trial revealed that mass screening of >25 000 Swedish residents identified untreated atrial fibrillation in 5% of 75–76 year olds, putting them at increased stroke risk. STROKESTOP aims to identify patients with undiagnosed atrial fibrillation and find out if OAC therapy reduces their risk of ischaemic stroke. Final results should be available by November 2018.

Patients with five or more risk factors and no AF have the same stroke risk as patients with AF, according to a study of >4 million patients from Danish registries over a 10-year period. Dr Christine Benn Christiansen (Denmark) said: ‘In patients with three or more risk factors, the risk of stroke is high regardless of the presence of AF. With five or more risk factors such as diabetes, hypertension, myocardial infarction, heart failure and age above 75 years, the risk associated with AF is eliminated’.

The risk of ischaemic stroke after AMI in diabetics dropped over a 10-year period, according to a study of >173 000 AMI patients in the Swedish RIKS-HIA register. RIKS-HIA contains data on all patients admitted to Sweden’s 74 coronary care units. Reperfusion therapy and secondary prevention drugs produced the decline and brought stroke risk after AMI closer to that of non-diabetics.

**Aortic stenosis**

Research included a German study showing that women are 25% less likely to die 1 year after TAVI than men. The findings suggest that TAVI might be the preferred treatment option for elderly women with symptomatic severe aortic stenosis. The study involved 1432 patients from 30 centres in the German TAVI registry. At 1 year the all-cause mortality was 17.3% for women vs. 23.6% for men.
The risk of aortic stenosis doubles when a first degree relative had the disease, according to a study of 3.3 million people from Danish registers by Dr Mattis F. Ranthe. Aortic stenosis occurred earlier in life in patients with a family history of the condition. Aortic stenosis risk increased by 10-fold in patients with ischaemic heart disease and family history.

TAVI is a safe alternative to redo cardiac surgery for failing bioprosthetic valves, according to research by Dr Spyridon Katsanos (The Netherlands). Three-year survival did not differ between patients treated with TAVI and those treated with redo cardiac surgery. The findings suggest that TAVI is a treatment alternative for inoperable elderly patients and high-risk patients with failing bioprostheses.

A study presented by Dr Timm Bauer of >1400 patients from the German TAVI registry reported that TAVI is feasible in patients with bicuspid aortic valve (BV). The findings open up a new treatment possibility in patients with BV, which has been considered a contraindication for TAVI. Bicuspid aortic valve patients had a higher rate of relevant aortic regurgitation (≥ grade 2) after TAVI than patients with tricuspid aortic valve (TV). Pacemakers were more often implanted in patients with TV.

Rhythmology research

Two-year results from the Paris Sudden Death Expertise Centre (SDEC) Registry revealed that out-of-hospital cardiac arrest survival is just 7%. From May 2011 to December 2012, 3670 sudden cardiac arrests with attempted resuscitation occurred. Most were at home (72%) with bystanders in 81% of cases, performing cardiopulmonary resuscitation in only 42%. Only 34% of patients were admitted alive at hospital and 7% were discharged alive. Therapeutic hypothermia and early coronary reperfusion were both significantly associated with survival, but these procedures were used in just 58% of patients admitted to hospital.

Preliminary results from the European Lead Extraction CTRolled (ELECTRa) Registry showed that infections cause a lower proportion of lead extractions than expected. ELECTRa is the first large prospective, multicentre, European controlled registry of consecutive patients undergoing transvenous lead extraction procedures in European real-world practice. It is carried out by the EHRA and managed by the ESC’s EORP programme. Initial results reveal that infections were the indication for lead extraction in 52% of cases. More than 60% of patients had diabetes or hypertension. CIED systems with more than a single lead were the most represented in the registry.

Pacemakers implanted for bradycardia restore life expectancy to normal levels, according to the FollowPace prospective cohort study in 23 Dutch hospitals. In 1517 patients survival rates were 93, 81, 69, and 61% after 1, 3, 5, and 7 years, respectively. Patients without cardiovascular disease at the time of pacemaker implantation had a survival rate similar to age- and sex-matched controls from the general Dutch population. Dr Erik O. Udo (the Netherlands) said: ‘Our results suggest that the prognosis of today’s pacemaker patient is primarily determined by whether or not they also have cardiovascular disease, and not by the rhythm disorder itself’.

Research in >15 000 patients from Dr Pierre Sabouret (France) showed that GPs undertreat women with atrial fibrillation. Just 48.1% of women received a VKA (vs. 52.6% men) and 30.5% received no prevention at all (vs. 25.4% men). More than 21% received only aspirin despite guideline recommendations that they should receive VKA. Age-stratified multivariate analysis of VKA prescription in patients <75 years found women were half as likely to be treated as men. In the ≥75 years subgroup women were 33% less likely to be treated than men.

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