Saturday 14 December 2013

EACVI EUROPEAN ASSOCIATION OF CARDIOVASCULAR IMAGING A Registered Branch of the ESC

10 EAE-EACVI YEARS leading the way for you

EuroEcho-Imaging

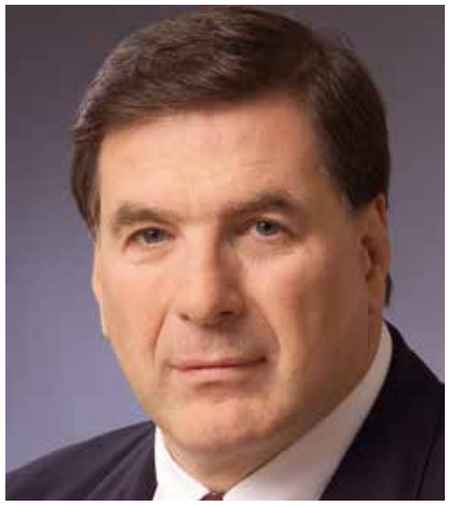
EUROPEAN SOCIETY OF CARDIOLOGY®

Congress News

Integration of Cardiovascular Imaging: an idea whose time has come

The recent establishment of the European Association of Cardiovascular Imaging (EACVI), from a merger of the European Association of Echocardiography (EAE) with the Working Group on Cardiac Magnetic Resonance and the Working Group Nuclear Cardiology and Cardiac CT, represents a major development within the European Society of Cardiology (ESC). For more than two years this merger has been preceded by a successful joint effort between the three bodies in producing the European Heart Journal - Cardiovascular Imaging.

These developments were triggered by an increased appreciation of the need for close collaboration between the various cardiovascular imaging modalities. The importance of moving from a technique driven approach towards a patient and problem driven approach has increasingly been recognized. In order to provide the best possible care to our patients it is important to understand the complementary values of all imaging techniques and their respective roles in clinical practice. At the same time clinicians need to be aware that not every imaging modality needs to be applied in each patient situation. For this they require in-depth knowledge of strengths and weaknesses of each modality, a sound understanding of the rapid technological developments, and an appreciation of cutting edge research. In the present climate of economic restraints, cardiologists also have to understand how to obtain the needed information in a cost-effective fashion without sacrificing the interests of their patients.



Professor Gerald Maurer
Medical University of Vienna

There is great need for collaborative research, where utilization of the different imaging modalities can be studied. Such research needs to be carried out at various levels, ranging from basic science, where we aim to understand mechanisms of disease using new tools (including molecular imaging, study of muscle mechanics and flow dynamics) to studies undertaken in the clinical setting. Increased emphasis needs to be placed on introducing randomised prospective trials evaluating the impact that imaging has on clinical practice.

Already the growing impact of such developments on education and training is evident. Interdisciplinary cardiovascular imaging fellowships are increasingly being offered and demand for them can be expected to grow further.

Formation of the EACVI will undoubtedly also play an important role in advising local and European health care regulatory agencies on issues such as the appropriateness of use, reimbursement and interactions with other health care professionals. These are exciting developments; we can anticipate seeing their continued and growing impact in the years to come.

Placing vascular imaging higher on EACVI educational agenda

Few cardiology training programmes across Europe encompass vascular imaging. On page 2, Dr Muriel Sprynger, from the University Hospital Liège, Belgium, explains the EACVI view that a more formal training programme should be established for echocardiographers performing vascular ultrasound. Even for routine vascular evaluations, she maintains, echocardiographers need to be taught subtle differences in techniques from those used in cardiac imaging, and to learn to identify serious vascular pathology. The new ESC task force, which has defined three distinct levels of vascular imaging for echocardiographers, has been established to raise angiology standards throughout Europe.

Today in your EuroEcho-Imaging Congress News

Meet Raphael Rosenhek, Promoting heart valve clinics to facilitate risk stratification and 'watchful waiting'

See you in Vienna

3-6 December 2014

Vascular imaging, a step beyond cardiac ultrasound

The European Association of Cardiovascular Imaging (EACVI) has established a task force to identify the training needs of echocardiographers who undertake vascular imaging. The ultimate goal of the initiative is to define the core curriculum that cardiologists interested in vascular medicine need to know, and raise standards of vascular imaging throughout Europe.

'While cardiac and vascular ultrasound can be considered complementary they're definitely not the same,' says Muriel Sprynger, who has been appointed by EACVI president Professor Patrizio Lancellotti to head the task force. 'We need to acknowledge that performing vascular ultrasound requires a completely different skill set from echocardiography. To ensure that cardiologists are safe and proficient they need to have a formal training.'

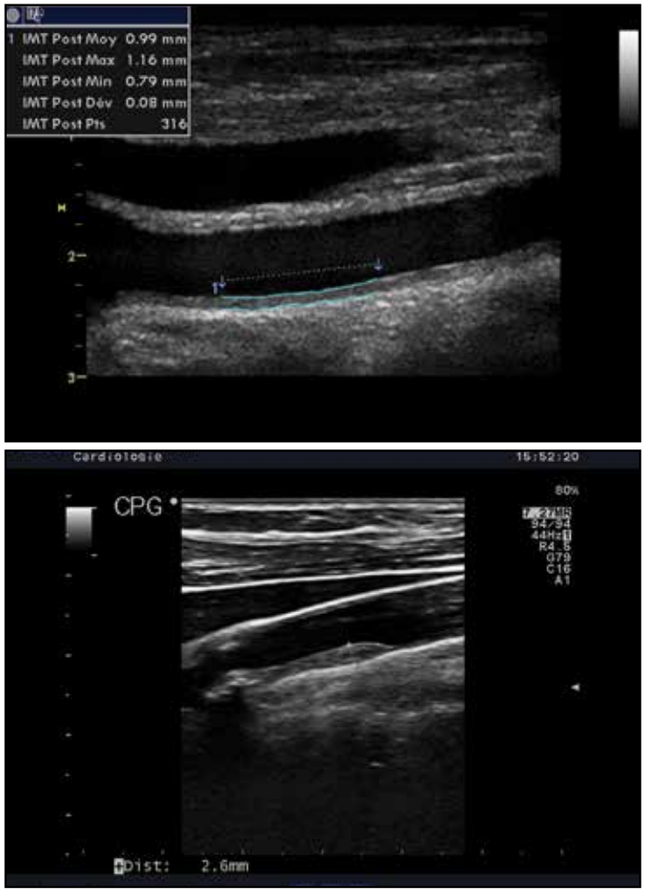
Vascular medicine (or angiology) is the medical specialty devoted to the evaluation and management of patients with arterial, venous, capillary and lymphatic diseases. Arterial diseases include atherosclerosis and its clinical manifestations, arteritis, aortic diseases, renal artery disease, mesenteric vascular disease, cerebrovascular disease etc. Venous diseases include venous thrombosis, chronic venous insufficiency, varicose veins etc; while lymphatic diseases include primary and secondary forms of lymphoedema.

In countries like Switzerland, Italy, France and Germany medical angiology is recognized in its own right; while delivery of care in other countries is distributed among a disparate array of internists, haematologists, nephrologists, neurologists, radiologist, vascular surgeons and cardiologists. The clinical reality here is that the health professional involved is largely determined by the organ that is predominantly affected. Although the Vascular Independent Research and Education European Organization (VAS) has recently created the CESMA-UEMS European Diploma in Angiology/Vascular medicine to place vascular medicine on a similar educational footing to other European specialities, considerable enrolment discrepancies exist between countries. The consequence of all this is that few cardiology training programmes include non invasive vascular laboratory diagnostic techniques, and that many cardiologists use their echocardiography training to get by. 'The lack of a medical specialty specifically targeted at these patients has undoubtedly held back training with the insufficient supply of vascular medicine teachers representing a major impediment,' says Sprynger, from the University Hospital Liège, Belgium, who describes herself as a cardiologist with a special interest in vascular imaging and angiology as a whole. 'What's really important is that the different disciplines involved don't see themselves as being in competition but learn to collaborate for the benefit of patients.'

The clinical reality is that arterial diseases are heavily intertwined with coronary artery disease (CAD) and share similar risk factors including smoking, dyslipidaemia, diabetes mellitus and hypertension. Indeed, the Reduction of Atherothombosis for Continued Health (REACH) Registry, which involved over 45,000 patients from 29 countries, showed that a substantial percentage of patients with chronic CAD have associated cerebrovascular disease, lower extremity artery disease (LEAD), or both (Am Heart J, 2006, 786: e1-10). The presence of both symptomatic and asymptomatic vascular problems are known to affect CAD prognosis and influence treatment strategies used, and furthermore it is well recognised that most patients with peripheral artery disease (PAD) ultimately die from CAD.

Perhaps the most frequent vascular procedure that cardio-logists find themselves undertaking is the evaluation of carotid arteries using duplex ultrasound (DUS, including B-mode echocardiography, pulsed-wave Doppler, colour Doppler, and power Doppler) to detect subclinical atherosclerosis (plaques and stenosis) and even quantify the extent and severity of lesions. 'If you have a hypertensive patient who's a smoker and his cholesterol is borderline this can really help you to get a better estimation of cardiovascular risk,' says Sprynger.

Even for such routine evaluations, she says, echocardiographers need to be taught subtle differences in approach from that used in cardiac imaging. 'They need to know to use different probes and to change the angle of the incident beam,' explains Sprynger, adding that they also require a good appreciation of the circumstances in which patients should be referred for other more costly techniques, such as positron emission tomography (PET), computed tomography (CT), magnetic resonance imaging (MRI) or angiography. Additionally good background knowledge is needed, such as learning to spot patients with conditions such as subclavian artery disease, arterial dissection, arterial entrapment, arteritis or inflammatory artery disease (e.g. giant cell or Takaysasu's arteritis). 'One of our major concerns is that inadequately trained people may not be indentifying these serious rare conditions,' says Sprynger. 'Even if cardiologists don't undertake imaging themselves they need to know when to refer patients.'



Intima Media Thickness (IMT) measurements in the common carotid artery are commonly used for cardiovascular risk estimation

The area, says Sprynger, is likely to get increasingly complex over the next few years. Techniques such as transcranial Doppler recordings, it is hoped will be able to detect High Intensity Transient Signals (HITS) corresponding to microemboli and diagnose those carotid plaques which are unstable and require urgent attention. Additionally new techniques looking at the rigidity and elasticity of arteries may further help risk stratification. 'Such advances underscore the need for improved education,' says Sprynger.

When the task force held their first meeting at the ESC Annual meeting in Amsterdam last September, they defined three distinct levels of vascular imaging education for echocardiographers:

- **The basic level, which should be undertaken by all echocardiographers, consisting of assessments for abdominal aortic aneurysms (AAA) and ankle brachial assessments.**
- **The intermediary level, which extended to include screening of the cervicoencephalic arteries (especially carotid arteries) and lower limb arteries.**
- **The top level, which should encompass comprehensive knowledge of arterial, venous, lymphatic and microcirculatory diseases.**

The level selected, says Sprynger, should depend on the personal interests of individual cardiologists, the available facilities, and whether there is support from angiologists in the department or medical neighbourhood. 'Our feeling was that all echocardiographers should be encouraged to undergo at least the basic level of training,' she says. Other aspects to be considered include identifying the number of procedures cardiologists should perform to be considered proficient, developing a syllabus defining minimum standards of education, and ultimately devising some form of certification and accreditation programme. 'Our final recommendations are scheduled for next spring, and we hope that they'll provide useful content for the ESC eLearning platform and a text book about vascular disease targeted at cardiologists,' says Sprynger.

Janet Fricker

Promoting heart valve clinics to facilitate risk stratification and 'watchful waiting'

Despite being just 38 Raphael Rosenhek has already made his name as an international expert in aortic stenosis and mitral regurgitation, pioneering the field of risk stratification for valvular heart disease and promoting the concept of 'watchful waiting'. Now Chairperson elect of the ESC Nucleus of the Working Group (WG) on Valvular Heart Disease, Rosenhek plans to champion the concept of dedicated heart valve clinics and forge stronger links with the EACVI.

'Echocardiography provides the cornerstone for valve disease. It's key for establishing aetiology, quantifying severity, studying progression, determining repercussions on the ventricle and assessing the likelihood of successful repair,' says Rosenhek, an echocardiographer who directs the Heart Valve Clinic at the Medical University of Vienna.

The Valvular Heart Disease WG and EACVI, he says, have a real synergy. 'Working together allows us to achieve more than the sum of either group alone.'

Initially Rosenhek, who grew up in Vienna, found it hard to choose between physics and medicine. This dual interest was inspired by his physician father and his great uncle Walter Kohn, who received the 1998 Nobel Prize for Chemistry in recognition of his role in the 'development of density functional theory'. Rosenhek solved his dilemma by studying both subjects in parallel, but at the end of his first year at the University of Vienna opted for medicine. 'Medicine had more of a human dimension which was really important to me,' he says.

This interest in people comes to the fore when we get side tracked from valves to talk about his family's experiences in World War II. Kohn and his sister Minna (Rosenhek's grandmother) escaped the Austrian holocaust by emigrating to Britain from Nazi occupied Europe. Minna's husband the Austrian sculptor Franz Pixner, was also touched by the momentous events of the twentieth century when he fought in the Spanish Civil War. 'When my grandfather sustained life threatening injuries he was observed by Ernest Hemingway. Years later he ran into Hemingway again who told him that he'd partly based the protagonist Robert Jordan in 'To whom the bell tolls' on him.'

Rosenhek's fascination with the scientific process was engendered by Kohn, who despite living in Santa Barbara regularly visited his European relatives. For his MD thesis Rosenhek studied the differential expression of tissue-type plasminogen activator in the aorta and the pulmonary arteries. 'Above all the experience taught me that I wanted my future research to have a direct clinical impact,' he says.

Graduating in 1998, Rosenhek went on to train in internal medicine and cardiology at the Medical University of Vienna, where he worked in a dedicated heart valve clinic. 'At the time valve disease was in the doldrums, but the area has recently became much more prominent due to the increased incidence related to ageing populations and advances in echocardiography allowing earlier identification of disease. The field has now become particularly trendy due to the introduction of percutaneous therapies for valve disease,' says Rosenhek.

For both aortic stenosis and mitral regurgitation Rosenhek has been a major contributor to the debate around optimal timing of interventions, supporting the view of 'watchful waiting' in asymptomatic mitral regurgitation, where asymptomatic patients are followed until they develop symptoms. To identify predictors of outcome Rosenhek prospectively used echocardiography to study a cohort of 128 patients with asymptomatic, severe aortic stenosis (NEJM 2000, 343: 652-654). The study identified calcification of the aortic valve and haemodynamic progression as risk factors for adverse outcomes, which became accepted criteria to refer patients early for surgery. For other patients, however, it was considered safe to wait until they developed symptoms. Submitting his first ever paper to the New England Journal of Medicine, says Rosenhek, involved an element of 'youthful bravado' which has paid off for the rest of his career.

Later he prospectively followed 116 asymptomatic patients with very severe aortic stenosis (defined by peak aortic jet velocities > or =5.0 m/s) and found that 96 events (including two cardiac deaths) occurred in a median follow-up of 41 months (Circulation 2010, 11:151-6). The study resulted in recommendations for early elective valve replacement in such patients. In the setting of severe degenerative mitral regurgitation Rosenhek showed that asymptomatic patients can be safely followed until either symptoms occur or currently recommended cut-off values for LV size, LV function, or pulmonary hypertension are reached (Circulation 2006, 113:2238-44).

Rosenhek's work contributed to the guidelines on valvular heart disease of the ESC and American College of Cardiology/ American Heart Association. 'It is a nice feedback when you're work influences clinical practice, 'he says.

For the optimal implementation of 'watchful waiting' Rosenhek firmly believes that dedicated heart valve clinics need to be put in place. Together with Patrizio Lancellotti of EACVI, Rosenhek authored a position paper in the European Heart Journal (published online January 4) calling for more dedicated heart valve clinics to be established. 'The bottom line is dedicated clinics provide higher quality health care that conforms more precisely to best practice guidelines,' he says. Not only can patients be followed really closely and called back to the clinic on a regular basis, but clinicians get the opportunity to see large number of patients, develop structured teaching programmes and construct large data bases. 'Furthermore input from a functioning heart team composed of valve and imaging specialists, cardiac surgeons, interventionalists and anaesthesiologists allows for a very balanced decision making.'

Indeed a UK study by John Chambers showed that the number of patients followed up according to best practice guidelines rose from 41 to 92% when heart valve clinics were introduced, and the total number of unwarranted echocardiographies fell significantly (British Journal Cardiol 2011, 18:231-232). Rosenhek's plans for the WG on Valve Disease, include the production of more joint position papers. Since joining the ESC in 2002 Rosenhek has also served on programme committees for the main ESC meeting and Euroecho meeting, and is also a member of the ESC Task Force on Medical Devices.

Rosenhek's international work has undoubtedly been aided by his ability to speak English, French, German, Spanish and Italian all fluently. His hobbies include contemporary art, and reading literature in the original language. 'When I travel I make a special point of visiting art galleries and speaking the local language if possible,' he says.

Janet Fricker

Expand
your knowledge
from anywhere

EDUCATION Distance Learning

The EACVI offers a wide range of
innovative and high quality training opportunities
to facilitate continued medical education
for professionals in the field

Stop by the EACVI Stand to learn more and get a personalised demo

What's happening with the EACVI Research and Innovations Committee?

Professor Erwan Donal, Chairperson of the EACVI Research and Innovations Committee

'The EACVI Research and Innovations Committee was created a year ago to establish a research network to facilitate large scale high quality studies in cardiac imaging.

While there are many large multicentre studies demonstrating the value of medical devices and pharmacological agents, no studies have so far evaluated the additive value of one imaging technique over another to cure patients. Additionally studies have not been undertaken to show whether new techniques, like 3D or strain, are any more effective at assessing patients than conventional techniques. We believe that there is a real need to demonstrate that our main imaging techniques and measurements used in practice are useful and capable of improving our ability to deliver care to our patients.

We need to demonstrate whether the quality of care offered to patients would be worse without imaging techniques. Ideally we should work on randomised studies, for instance comparing treating acute heart failure with versus without any echocardiographic examinations. Information such as whether imaging enables earlier diagnosis that leads to shorter hospital stays will be vital for health economic assessments.

The EACVI Research and Innovations Committee has 11 members who meet four times a year. Our first task has been to define the rules needed in imaging studies to guarantee ethics and scientific excellence. Any investigators interested in building scientific projects on echocardiography can request input on their studies.

We also recognize that there is a need to organize our association to promote and conduct large multicentre studies or registries in the field of imaging. Ultimately we hope that the Committee could be used as a platform by national societies, investigators and companies wanting to undertake cardiovascular imaging. They would be allowed access to our database of EACVI accredited laboratories in order to approach them about becoming involved with studies, and we would also be able to connect them with a panel of echocardiographers and scientists to conduct validation studies. If you want to join our research network we urge you to have your laboratory EACVI accredited.

While the NORRE study is the first EACVI Research and Innovations Committee sponsored study to be undertaken, we are starting to recruit to the Eurofilling study (exploring the assessment of filling pressures by echo) and are setting up a registry about aortic valve stenosis.

Professor Patrizio Lancellotti, President of the EACVI and member of the Research and Innovations Committee

'The Normal Reference Ranges for Echocardiography (NORRE) study, launched following the EuroEcho-Imaging 2012 meeting, represents the first study to be coordinated by the EACVI Research and Innovations Committee. The study has been designed to obtain a set of 'normal values' for cardiac chamber geometry and function in a large groups of healthy individuals aged between 25 and 75 years.

The research involves obtaining echocardiographic data from around 1100 normal subjects. For the study altogether 22 laboratories accredited by the EACVI and one USA laboratory accredited by the ICAEL are recording data for M mode, 2D, and 3D imaging, colour Doppler, pulsed-wave Doppler, pulsed-wave tissue Doppler, and colour tissue. Data is being obtained across different age groups because normal values change as people age, and we need to know what is normal for the elderly, middle aged and young.

For the study the core laboratory in Liège, Belgium, is testing the reproducibility of all these measures. Ultimately we hope the NORRE study will be able to identify both the reliable parameters that we can trust, and the parameters we should be particularly careful about using.'

EuroEcho-Imaging Congress News - 11-14 December 2013 Editor-in-chief: P. Lancellotti Medical writer: Janet Fricker Graphic Design: Hobby One Copyright © ESC 2013

EuroEcho2014 Imaging

18th Annual Meeting of the European Association of Cardiovascular Imaging, a registered branch of the ESC, in cooperation with the Austrian Working Group of Echocardiography.

VIENNA AUSTRIA 3-6 DECEMBER

Main Themes

• Three-dimensional Imaging • Imaging in acute cardiac care

Get ready to submit your abstract: 1 April - 31 May 2014

CONGRESS KEY FIGURES

4 days of scientific sessions
1 390+ abstracts submitted
150+ scientific sessions
3 200+ healthcare professionals
90+ countries represented
650 m²+ exhibiting industry
30+ "hands-on" sessions

+20% abstracts submitted in 2013

www.escardio.org/EACVI

EACVI EUROPEAN ASSOCIATION OF CARDIOVASCULAR IMAGING

EUROPEAN SOCIETY OF CARDIOLOGY®

www.escardio.org/EACVI

Registration Deadlines

at the early fee
30 September 2014

at the late fee
31 October 2014