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EuroEcho-Imaging



Congress News

EACVI President Elect: a fantastic challenge

By Gilbert Habib, President Elect EACVI

To be President Elect of the European Association of Cardiovascular Imaging (EACVI) represents both a great honour and an incredible challenge. My first goal having been a member of the EACVI/ European Association of Echocardiography (EAE) Board for several years will be to ensure continuity by continuing with the fantastic work that has already been achieved, particularly in the fields of education and research.

The role of the President Elect is two-fold, both to chair the Scientific Program Committee that plans the content of the EuroEcho-Imaging meeting, and to help shape the future direction of our association.

We believe that this year's EuroEcho-Imaging meeting will achieve an all time record breaking attendance of 3200 delegates. The reason for our optimism is the growing interest of cardiologists and allied health professionals around the world in echocardiography and other imaging modalities.

With four days of scientific sessions, 150 individual sessions, and delegates anticipated from more than 90 countries, EuroEcho-Imaging2013 undoubtedly represents the largest international medical meeting covering the topic of imaging. With abstract submissions up 20% on last year (1390 individual submissions) it's likely to prove a truly record breaking meeting.

Sessions on the main themes of this year's meeting 'Heart Failure' and 'Imaging in Interventional Cardiology' will be interspersed throughout the programme. Highlights to watch out for include the 'Echo@Jeopardy' quiz, live sessions illustrating the role of echo during surgery, and joint sessions with our sister societies, exploring how echocardiography works in different parts of the world. For this year an exciting development to help navigate the meeting is a new app that will allow you to download the Scientific Programme on your

own mobile device.

Special thanks for their invaluable contributions in building the programme go to Julien Magne, Scientific Programme Director.

Looking to the future we are now facing a crucial chapter in the story of EACVI. The new re-organisation of EACVI offers an important step forward in the field of non-invasive cardiovascular imaging, involving a collaboration of the former EAE, the ESC Working Group on Nuclear Cardiology & Cardiac Computed Tomography and the ESC Working Group on Cardiovascular Magnetic Resonance.

The mission of the EACVI is to promote and develop all aspects of echocardiography and other imaging modalities both within and outside Europe and to address clinicians' and patients' diagnostic needs in the broader field of non-invasive cardiovascular imaging. The EACVI now embraces all non invasive imaging modalities, including MRI, CT, and nuclear techniques.

While the role of the outgoing board was to welcome all the imaging modalities into the EACVI family, our role will be to take matters one step further and ensure full integration. Here our main goals will be to:

- Promote and develop the use of multimodality imaging by European cardiologists in the management of patients with heart disease, with the respective roles of echocardiography and other imaging techniques more precisely defined. Ultimately, the needs of the individual patient will take centre stage defining the type of imaging technique to be used.
- Provide a broader education scheme in cardiovascular imaging including all non invasive modalities.
- Promote research and prepare recommendations to advance the field of cardiac imaging.

The future belongs to young investigators, who represent the life blood of our organisation. In the course of their careers they are likely

*Gilbert Habib,
President Elect EACVI
Cardiology Department,
Hôpital La Timone,
Marseille, France*



to use a variety of imaging techniques rather than just focusing on one of them. Consequently, a broader education curriculum encompassing all the different imaging modalities will need to be developed. Having a good overall knowledge of the different techniques will allow clinicians to achieve our goal of selecting the most appropriate strategy for the individual patient.

I therefore see EACVI Club 35 as continuing to play a fundamental role in the future of the EACVI.

Enhancing communication between echocardiographers and interventionalists

Recent advances in minimally invasive percutaneous interventions would not have been possible without parallel developments in cardiac imaging, allowing precise guidance of catheters, optimization of results and detection of complications. On page 2, Eric Brochet, from the Hôpital Bichat, Paris, explores the importance of developing good team work between echocardiographers and interventionalists. As in any new relationship, Dr Brochet cautions, both sides of the partnership need to work together on improving communications.

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Anthony DeMaria,
Confessions of an echocardiographer:
relishing contact with patients



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The role of the echocardiographer in the catheterization laboratory



In recent years one of the most striking trends seen in cardiology has been the transition from open heart surgery to minimally invasive percutaneous procedures. Such rapid developments in

catheter technology mark a new era of collaboration and teamwork between interventionalists and echocardiographers, with advances accompanied by parallel developments in imaging.

In the new heart team echocardiographers play an essential role in first identifying which patients are suitable for interventions (providing anatomic and haemodynamic information), then providing intra procedural monitoring, and finally they have an important role to play in post procedure monitoring. 'Both partners need to have a good knowledge of the procedural requirements, which specific parameters to monitor, and what incremental diagnostic information echocardiography and/or fluoroscopy may provide during each step of the procedure,' says Dr Eric Brochet, from the Hôpital Bichat, Paris. 'Throughout the procedures it's critical that interventionalists and echocardiographers maintain a constant dialogue regarding anatomic structure and function, as well as progress. To ensure that communication is good they need to work together on a regular basis and learn to speak the same anatomical language.'

It is a discipline that is continually evolving. In addition to well established procedures such as transcatheter closure of the atrial septal defects (ASDs) and patent foramen ovale (PFO), balloon mitral valvuloplasty (BMV), and transcatheter alcohol septal ablation (TASH) for hypertrophic cardiomyopathy, interventionalists have more recently been tackling percutaneous left atrial appendage (LAA) closure and percutaneous aortic and mitral valve interventions. This includes the implantation of aortic valves using trans aortic valve implantation (TAVI), and tackling the mitral valve with the mitral clip, (Mitraclip), a procedure that involves the deployment of one or more clips at the site of maximal malcoaptation of leaflets. 'Percutaneous treatment of the mitral valve has altogether proved more challenging than the aortic valve because you don't have the presence of calcification which provides structural support, furthermore mitral valves have a more complex

structure. But now TAVI valves are starting to be used for percutaneous mitral valve replacement,' says Brochet, adding that a number of other new percutaneous techniques are now in progress for mitral valves. Another recent addition has been transcatheter valve in valve replacement (TVIV) where TAVI procedures are used to insert new transcatheter valves directly inside the degenerated bioprosthesis or prosthetic annulus. While such percutaneous valve procedures are currently used for elderly patients considered at high risk for conventional open heart surgery, few doubt that in the future they will be extended into the general surgical population.

Although fluoroscopy provides an important aid while advancing catheters in the heart, its poor soft-tissue resolution has limited its ability to visualize intracardiac anatomy. Echocardiography, in contrast, can provide direct assessment of soft tissues and cardiac anatomy and is able to visualise the spatial relationships between catheters or devices and adjacent structures. The advantage that echocardiography offers over other advanced imaging modalities, such as magnetic resonance imaging (MRI) and computed tomographic angiography (CTA), is that echocardiography is mobile and can be used in real time in the cardiac catheterization lab. 'To have all the necessary information to hand teams of course require both echocardiography and fluoroscopy,' says Brochet.

The type of echocardiographic procedure selected, he adds, is largely determined by the established role of each modality in the specific setting, the team's experience of the technique, and whether or not general anaesthesia is required for the procedure.

Transthoracic Echocardiography (TTE), which involves placing the probe on the thorax of the patients, offers the simplest to use technique, and does not require a general anaesthetic. TTE can be used very rapidly so it's helpful for complications like tamponade. 'But we can only check on results at the end of procedures,' says Brochet. TTE is commonly used for BMV, TASH, and TAVI.

Transoesophageal Echocardiography (TOE), where the probe is positioned inside the oesophagus, has become the standard imaging modality for guiding interventional procedures. Advantages here include clearer images since it does not have to traverse skin, fat, ribs and lungs before reaching the heart, and accurate assessments of posteriorly situated cardiac structures (such as

the interatrial septum, mitral and aortic valves). In recent years Real time 3D TOE and biplane TOE imaging have come to be considered as the best echocardiographic modalities for complex procedures. The main limitation is that TOE usually requires general anaesthesia and endotracheal intubation. 'This means that an anaesthesiologist also needs to be included in the team,' says Brochet. TOE can be used for transeptal puncture, BMV, Atrial Septal Defect (ASD), PFO, TASH, TAVI and other complex percutaneous procedures.

Throughout the performance of all these techniques, Brochet believes that good communication between the interventionalist and echocardiographer remains key. 'The reality is that anatomy is often described in very different ways by interventionalists and echocardiographers. From the outset they need to define exactly the anatomical landmarks and orientation of the images,' says Brochet, adding that for each individual procedure they will need to go through this process.



In recent years 3D TOE, shown here in the mitral clip, has come to be considered the best echocardiographic modality for complex procedures

Intracardiac Echocardiography (ICE), is an intravascular approach introduced via the femoral vein that represents a purely intraprocedural guiding and imaging tool. ICE does not require general anaesthesia and can be operated without additional physician support if the interventional operator is familiar with echocardiography. Advantages include the fact that it is well tolerated by patients, and shortened fluoroscopic and procedural times. The main limitation is the fact that the catheters involved are expensive and single use only. 3D imaging has recently become possible with ICE catheters. ICE is used for transeptal puncture, BMV, percutaneous ASD and PFO closure, and for TAVI.

Collaborations between interventional cardiologists, surgeons, echocardiographers and anaesthesiologists need to be given far greater attention in the organization of catheterization labs. One area requiring greater attention, adds Brochet, is the potential for radiation exposure of echocardiographers and anaesthesiologist working in close proximity to fluoroscopy. 'Hybrid' rooms are starting to be developed in some cases that provide additional space for each procedure and ensure protection of everyone involved from radiation exposure.

'The catheterisation labs of the future will need to be redesigned so that all health professionals involved in the procedures can communicate easily and are well protected,' says Brochet.

Janet Fricker

Confessions of an echocardiographer: relishing contact with patients



Anthony DeMaria, who is just coming to the end of his ten year term as editor of the Journal of the American College of Cardiology (JACC), feels extraordinarily privileged to have had a ring side seat

in the development of many new cardiovascular technologies, especially echocardiography.

'Watching this technology explode has been a phenomenal experience. Throughout my career I've been so lucky to be in the right place at the right time,' says DeMaria, now Chief of the Cardiovascular Division of the University of California at San Diego.

Growing up in what he describes as a 'mixed marriage' New Jersey family (his father was Italian and mother Polish), DeMaria's outlook was heavily influenced by his family's work ethic. 'My Dad started out as a pedlar selling fruit and vegetables on the streets and worked his way up to run his own store. Each morning he'd get up at 4am and wouldn't get home until past 10 pm. He was the ultimate role model,' he says.

Recognising education offered the most effective route out of such backbreaking routine, DeMaria's parents drummed into him the importance of working hard at school. When it came time for college, the choice of medicine was serendipitous. 'To be honest, the reason I signed up for medicine was because this was the career that seemed to most satisfy my family when they asked what I wanted to do,' says DeMaria, who was the first person in his entire extended family to attend university. 'After my wife, it was the best decision of my entire life.'

Getting married to Lori at the end his third year at New Jersey College of Medicine, and having their first child by the end of his fourth year, undoubtedly did much to focus his mind on career development. It was his medical residency at the United States Public Health Service Hospital in Staten Island, New York, in 1969 that first 'tweaked' his interest in cardiology. Here he worked with Anthony Damato, credited as

the first person to have recorded electrical activity of the bundle of His. 'It was the time of the Vietnam War and I was able to fulfil my service obligations while growing professionally,' he says.

Next up in 1971 was his cardiology fellowship at the University of California at Davis in a programme started by Dean Mason. 'I have to admit that sunshine was a big part of the initial draw,' he says. Mason, a 'prolific investigator', persuaded him to undertake studies with the radarkymogram, a device tracking the epicardial border of the heart using fluoroscopy. Unable to make 'head or tail' of the technology, DeMaria stumbled across an American Heart Association session where Harvey Feigenbaum, from Indianapolis, talked about his attempts to do the same with ultrasound. 'I was mesmerised,' says DeMaria.

Brokering a deal with an initially sceptical Mason, DeMaria negotiated to undertake a drug trial in return for going to Indianapolis to learn about echocardiography and purchasing his own machine. 'During the week I was in Indianapolis I read the entire world's literature on echocardiography. There were 25 articles,' he says.

On return DeMaria installed his new M mode echocardiography machine in the basement of the hospital. 'The department only became believers when I used it to diagnose a suspected functional mitral regurgitation as flagrant hypertrophic cardiomyopathy; and a suspected mitral stenosis as an atrial septal defect, he says.

DeMaria embarked on his research programme undertaking observational studies using echocardiography in conditions such as mitral prolapse, left bundle branch block, and Wolff Parkinson White. 'This was a special time. We were undertaking descriptions and establishing diagnostic criteria for different things, then started to use the information to study cardiac physiology,' he says. They used echocardiography to explore the effects of nitro-glycerine on left ventricular cavity size, and looked at echocardiographic responses to treadmill testing. With M mode segueing into 2D, and 2D into pulse Doppler and then to 3D, they extended their observations.

When Mason became President of the

American College of Cardiology (ACC) in 1978, he appointed DeMaria as programme chairperson of the 27th Annual Scientific Session. Just 34 at the time, DeMaria had the formidable task of reorganising the way abstracts were submitted and selected. After successfully heading the ACC's Technology Committee, where he oversaw recommendations regarding funding of angioplasty by the US government, and Government Relations Committee, in 1988 DeMaria went on to become the youngest ever President of the ACC. Here he pushed the society to extend their remit to health policy.

Achieving such eminence so early, DeMaria spent the next two decades focusing on establishing his university departments and building research programmes. In 1981 he was appointed Chief of the Cardiovascular Division at the University of Kentucky College of Medicine, and in 1992 moved to the University of California, San Diego, where he spearheaded the development of the \$ 270 million Sulpizio Cardiovascular Center, bringing together all the different cardiology departments under one roof. 'Allowing the different disciplines to rub shoulders proved really fertile for research as well as teaching,' he says, adding that one of his proudest professional achievements has been the successful subsequent careers of the people he mentored.

Starting in Davis, he has conducted research in contrast echocardiography, and use of micro bubble agents to visualise heart perfusion. Beginning initially with the injection of carbon dioxide into the coronary artery of an animal, he observed that the myocardial signal was markedly amplified, indicating perfusion of the heart muscle. Subsequently, ultrasound contrast agents consisting of microbubbles were developed and have proven to be of value in assessing MIs and viability in patients. This work continues with an ongoing study using targeted microbubbles to identify 'memory' signals of ischemia for chest pain that resolves by the time patients reach the emergency room.

Although micro bubbles have proved tricky, DeMaria firmly believes they will ultimately have important applications for visualising myocardial perfusion. Asked to put his money on the next

big echocardiography developments, he says that speckle tracking is likely to lead to progressively more sophisticated ways to identify deformation, allowing muscle dysfunction to be identified at an earlier stage and interventions to be introduced to prevent the progression to heart failure. Hand held echocardiography, he adds, heralds a future where all doctors will carry small ultrasound devices and apply them to the physical examination in the same way they now use stethoscopes.

Despite his flourishing research DeMaria was unable to resist the lure of editing JACC in 2002. 'Deciding what's really important for people to read offers an incredible opportunity to shape the flow of information,' he says. 'You also have an almost sacred responsibility to ensure that the best scientific information is made available as rapidly as possible.'

He is acutely aware of the chance nature of having papers accepted. 'History is replete with examples of important discoveries that initially weren't recognised. At JACC we introduced a calibration system that attempts to equalize the variables, such as the characteristics of individual reviewers.'

What he has particularly relished is writing his editor's page. 'I took the tack that in a journal devoted to science I could focus on human aspects of medicine,' he says. After publication of 'The Confessions of an Inefficient Provider' (JACC, 2011, 58, 1394-5) where he explored how he never got the knack of adhering to stringent time periods laid down for clinicians to see outpatients, he received a plethora of email responses. His problem, he wrote, was that he relished his contact with patients and took pleasure not only in examining them, but also in getting to know them.

DeMaria sounds genuinely shocked by the question whether stepping down from JACC in July 2014 signals retirement? 'Heavens no! I'm still a university professor, have a busy clinical practice and research programme, and am open to other opportunities,' he says. Leaving JACC should however allow him to spend more time with Lori, his three children, and seven grand children, and perhaps also the luxury of longer chats with patients.

Janet Fricker



DON'T MISS our special event!
Happy Birthday EACVI!



Celebrating 10 years of EACVI/ EAE membership



Jean Tartar,
a private cardiologist
from Dunkerque,
France

'In 1999 while already a member of the French Echo Society I attended the third EuroEcho meeting in Vienna and felt that it would be logical to join the European Association of Echocardiography (EAE).

The growing importance of echocardiography over the last ten years has been reflected by the increasing numbers of people attending the EuroEcho meetings. Over this period I've managed to attend eight annual meetings and find that they offer a really valuable opportunity to update my knowledge. I've also appreciated the excellent networking opportunities, and at one meeting had the good fortune to meet the renowned Professor Liv Hatle, who first was responsible for breakthroughs in using doppler in cardiology.

Now nearing retirement I really regret that I didn't have the opportunity to join the EACVI when I was training. But whatever your level of expertise the EACVI has a lot to offer. Beginners have the opportunity to attend really interesting training sessions, while established echocardiographers can update their knowledge. I also value the journal and EACVI website, and have found the webinars particularly useful for my continued education.'



Alain Delabays,
from University Hospital,
Lausanne, Switzerland

'After working in Boston in the mid 1990s I became convinced of the need to develop a strong European Echocardiography group that was run along similar lines to the American Society of Echocardiography. I've been a member since the creation of the Working Group on Echocardiography and over the years feel that membership of the EAE, and more recently the EACVI, has provided me with the opportunity 'to stay tuned' to latest developments in the field. As well as promoting the teaching of cardiovascular imaging, the EACVI plays an important role in defending the interests of imaging experts across Europe.

For me a particular pleasure has been observing the growth of the EuroEcho annual meeting, which has evolved into being one of the biggest echo congresses in the world. While I use all echo modalities, my particular area of expertise has been 3D echo, and networking with colleagues has given me the opportunity to discuss future developments and applications of this technology.

Such interactions are gratifying and make me feel that I have at least had a small part to play in the evolution of the technique. I've attended all the EuroEcho annual meetings, apart from the very first one in Prague, and have fond memories of the early meetings in Eastern European countries which attracted a great number of Eastern European colleagues doing much to establish the growth of the European community.

For me a highlight has been my membership of the editorial board of 'The European Journal of Echocardiography' where I have learnt a great deal from my contact with board members such as how to develop and run a medical journal and how to publish in such a journal! I'd strongly recommend that anyone interested in establishing a career in echocardiography joins the EACVI.'

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Medical writer: Janet Fricker

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