EuroEcho-Imaging 2015 in Seville, Spain: what has been hot?

The world’s largest cardiovascular imaging conference was held from 2 to 5 December 2015 in Seville, Spain, at the Sevilla Palacio de Congressos (FIbes II). It is the annual meeting of the European Association of Cardiovascular Imaging (EACVI).

Specific teaching courses per modality [echocardiography, cardiac magnetic resonance (CMR), and nuclear/computed tomography (CT)] were dedicated to enrich the multi-modality nature of the congress. Moreover, cutting edge research has been presented on 3D printing in valve disease, robotic echocardiography, and fusion imaging. New methods in molecular imaging have been presented that use all the imaging modalities to detect subtle pathophysiological processes.

The 2015 themes were ‘cardiomyopathies’ and ‘early diagnosis of cardiovascular diseases’.

The theme on cardiomyopathy encompasses a number of topics, including the intensely debated role of imaging in selecting patients for cardiac resynchronisation therapy, new ways to assess cardiac remodelling, ischaemic heart disease in women, how to treat heart failure with preserved ejection fraction and whether emerging cardiac imaging technologies are now sensitive enough to detect early signals of cardiovascular risk.

Approximately 3200 delegates from >90 countries attended, including cardiologists, cardiac ultrasonographers, anaesthesiologists, nuclear physicians, paediatric cardiologists, surgeons, scientific engineers, nurses, general practitioners, and medical technicians.

During 3.5 days of congress, there were 156 scientific sessions and nearly 900 abstracts presented from almost 1260 submissions. The terrible events that had occurred around the world did not discourage the 356 faculty members to keep education on-going.

The role of computer modelling in congenital heart disease

Patients with congenital heart disease may have complex haemodynamic circuits. Computer modelling derived from a mathematical concept could help improve our understanding of how changes in haemodynamic variables influence the circulation.

For example, in Fontan patients, it has been shown that an increase in central venous pressure during exercise is necessary for adequate pulmonary flow, but the same increase limits the reserve capacity for cardiac output. Computer modelling can go one step further and help with surgical decision-making by simulating different surgical interventions (Figure 1).

Geometric and haemodynamic variables are adapted at once, and the effect on the circulation is evaluated immediately. However, computer modelling does not predict the clinical outcome, does not account for all biological processes, does not dictate clinical decisions, and cannot replace the bedside assessment.

Computer modelling might also serve as a platform for innovation and can test haemodynamic models that no one would attempt in humans. The validation of this computer-based concept can be done in silico or in vitro, and might reduce the number of animal tests. However, computer modelling simulates not only haemodynamic data but can also be applied to study the myocardium itself, or to unravel the electro-mechanical activation of the heart. The latter has progressed quite far in patients after Tetralogy of Fallot repair and might open avenues towards a better understanding of the final result of interventions.

Computer modelling is evolving rapidly, and will presumably be a part of our daily practice in the future. However, models need to be developed with accurate and continuously updated datasets. Validation in clinical practice by close cooperation between engineers, computer scientists, and clinicians is mandatory.

Sport: friend or foe? Lessons from imaging

In this session, the speakers were asked to consider whether exercise training could serve as a support to physical therapy and to describe the main aspects of the athlete’s heart.

In the first presentation, the speaker focused on the possibility of monitoring the beneficial effects of cardiac rehabilitation therapy by non-invasive imaging. Exercise prescription commonly refers to a specific plan of fitness-related activities that are designed for a specified purpose, which is developed by a fitness or rehabilitation specialist for the individual patient.

An exercise prescription should generally include the following recommendations: (i) type of exercise or activity (endurance/ training), (ii) specific workloads, (iii) duration and frequency of the activity or exercise session, and (iv) intensity guidelines including target heart rate range and estimated rate of perceived exertion.

Using both clinical evaluation and imaging techniques, the cardiologist should perform the initial assessment, management, and stabilization of the patient. Exercise stress test has then a pivotal role in the evaluation of functional capacity and a regular clinical follow-up is necessary for the reassessment of symptoms, exercise progress, and cardiac remodelling.

During regular clinical follow-up for exercise progress and symptoms reassessment, the cardiologist should evaluate the progress of exercise tolerance, evaluate cardiac remodelling and ischaemic burden and if necessary, modify the prescription according to the improvement in fitness.

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The second presentation focused on the chronic adaptations typical of the athlete’s heart. A multi-modality imaging approach to the athlete’s heart aims to differentiate physiological changes due to intense training from serious cardiac diseases with similar morphological features. Imaging assessment of the athlete should begin with a thorough echocardiographic examination.

The measure of left ventricular (LV) wall thickness by echocardiography can contribute to the distinction between athlete’s LV hypertrophy and hypertrophic cardiomyopathy (HCM). In patients with HCM, the LV end-diastolic diameter exceeds normal limits only at the end stage of the disease, when the LV ejection fraction is ≤50%. Patients with HCM also show early impairment of LV diastolic function, whereas athletes have normal diastolic function.

When echocardiography cannot provide a clear differential diagnosis, CMR should be performed. Cardiac magnetic resonance allows an accurate morphological and functional assessment of the heart. Tissue characterization by late gadolinium enhancement may show a distinctive, non-ischaemic pattern in HCM, which can help in differentiating this pathology from other myocardial diseases, such as idiopathic dilated cardiomyopathy or myocarditis.

In the final presentation, the speaker underlined the effects of extreme sports on right ventricular (RV) function. While strength training seems to impact minimally on the right ventricle, endurance exercise is associated with the most extensive cardiac remodelling. Previous reports have described a disproportionate load on RV due to training. Although the reversibility of the ventricular changes induced by sport after detraining is considered a typical feature of the athlete’s heart, several studies have shown that recovery might be incomplete, in particular for RV changes and this is particularly true in more highly trained athletes.

In conclusion, the type, intensity, and the duration of sports training should be strongly considered together with other factors (age, male sex, black ethnicity, and body surface area) as the main determinants of cardiovascular adaptations to physical exercise.

**3D in assessing cardiac chambers**

The session started with a talk from Dr Karina Addetia from Chicago who covered why we need 3D for assessing the LV. She explained the limitations of conventional methods of LV evaluation, from the ‘eyeball’ technique right through to Simpson’s bi-plane, which is susceptible to foreshortening and the lack of accuracy in distorted ventricles. Dr Addetia explained very clearly why the current EACVI and ASE guidelines recommend the use of 3D where it is feasible and where the necessary expertise exists. She also demonstrated why 3D could give us new information on LV shape and apical curvature, both of which appear to be prognostically important.

We moved across to the RV with the next presentation from Dr Nozami Watanabe from Japan. The RV has a complex shape and it is very easy to undersize it with 2D Echo. She explained how dedicated 3D analysis software could help overcome this. In addition, evaluation of the tricuspid valve annulus appears important and can be achieved using 3D techniques. The take home message was that 3D RV assessment, while being more accurate than 2D, should be used in combination with other parameters of RV function.

The last presentation in this session addressed the remaining two cardiac chambers and Prof Victor Mor-Avi elegantly covered the role of 3D Echo in assessing the left and right atria. He started by explaining why measurement of LA size is so important for prognosis, predicting cardiac events and assessing diastolic function. It was clear from the data presented by Prof Mor-Avi that 3D LA volumes are so much better than linear dimensions or LA areas in predicting outcomes. He then went on to explain that the conventional methods of measuring LA volumes (area—length and Simpson’s bi-plane) are very limited and potentially inaccurate.

Three-dimensional Echo assessment of volumes correlate much better with CMR than the older, more traditional methods and have led to a change in normal values contained in the Guidelines. Three-dimensional also gives us the possibility of looking at the dynamic function of the LA and also measuring 3D LA strain. The latter parameter is proving very useful in terms of predicting the development of AF in selected patient groups. Prof Mor-Avi concluded his talk by explaining that the same principles apply to the right atrium, although less data currently exists.

**Cardiovascular magnetic resonance for valvular heart disease**

Echocardiography is the mainstay imaging technique to evaluate patients with valvular heart disease. The complementary role of CMR in the evaluation of valvular heart disease was underscored in this session. In patients with challenging acoustic windows and inconsistently graded severity of valvular heart disease, CMR provides high spatial resolution data to characterize the valve anatomy (i.e. to differentiate between bicuspid and tricuspid aortic valve), quantify cardiac chamber dimensions and function and to assess the dimensions of the aorta. In terms of evaluating valve haemodynamics, CMR has been shown accurate to quantify the severity of valvular dysfunction, although it has a lower temporal resolution compared with echocardiography.

Dr Le Ven presented interesting data on the assessment of the anatomy and effective orifice area quantification in stenotic and regurgitant valve lesions. In addition, Dr Le Ven underscored the growing interest in the effects of the valvular lesion on left ventricular mechanics, beyond the simple measurement of LV ejection fraction. With the use of late gadolinium enhancement, replacement and diffuse myocardial fibrosis can be assessed with CMR.

The presence of replacement fibrosis has been associated with prognosis and clinical outcomes after surgical treatment of valve disease.
disease (i.e. symptom relief, LV functional recovery). However, the clinical implications of the assessment of diffuse fibrosis remain under investigation and further studies are needed. Advances in post-processing software and standardization of data acquisition will help to implement this technique in clinical practice.

Dr Kilner provided new insights into the pathophysiology of mitral valve prolapse, highlighting specific phenotypes of the left ventricle and mitral annulus dynamics that can be assessed with cine CMR.

Dr Alpendurada provided a comprehensive overview of the role of CMR to evaluate patients with bicuspid aortic valves, with particular focus on associated aortopathy and life-threatening complications such as aortic dissection.

Finally, as a glimpse into the near future, Dr. Ebbers summarized the technical aspects of 4D flow assessment with CMR. 4D flow assessment is the most frequently used method to visualize (streamlines, path-lines and vectors) and to quantify (peak velocities and flow volume) blood flow through the valves. Whether this imaging application is ready for use in clinical practice, and whether it has consequences for the management of patients with valvular heart disease remains to be demonstrated.

Dr Kulkarni concluded: ‘I don’t want pregnant women with diabetes or obesity to think that something will definitely go wrong with their pregnancy. We need more answers about what impact diabetes and obesity in the mother may have on the child after birth, before coming to firm conclusions about implications for the health of the baby.’

Foetal heart changes

Changes in foetal hearts found in pregnant women with diabetes or obesity need more studies to find out if foetal changes affect cardiovascular health.

Changes in foetal hearts have been found in pregnant women with diabetes or obesity, in research presented at EuroEcho-Imaging 2015 by Dr Aparna Kulkarni, paediatric cardiologist from the Bronx, New York, USA.

In the USA, pregnant women with diabetes and some with obesity are routinely referred for standard of care foetal echocardiograms. During 2012–2015, the study prospectively enrolled 82 pregnant women with diabetes and 26 pregnant obese women with a body mass index of >30 kg/m². A control group of 70 healthy pregnant women who volunteered to have a foetal echocardiogram was used for comparison.

The researchers examined the echocardiograms to see how well the heart muscle of each foetus was contracting and relaxing. Next they processed the pictures using speckle tracking to generate more detailed information on heart muscle function by evaluating the heart muscle motion.

The researchers found subclinical changes in the myocardium of foetuses of mothers with diabetes and also foetuses of mothers with obesity, compared with the foetuses of healthy women. The changes were not apparent by routine echocardiographic techniques.

Dr Kulkarni said further studies were needed to find out if these foetal changes affect cardiovascular health as a child or an adult, when during pregnancy the hearts are affected and whether anything can be done to alter this course. As an extension of the current study, Dr Kulkarni will examine the babies’ hearts at 1 year of age to see if the abnormalities are still present, get worse, or have disappeared.

Can cancer itself damage the heart?

Research presented at EuroEcho-Imaging 2015 raises the possibility that cancer itself may damage heart muscle irrespective of exposure to cancer drug therapies. Researchers from the UK’s first dedicated cardio-oncology clinic found that both treated and untreated cancer patients had impaired heart function.

‘It is well known that chemotherapy is potentially toxic to the heart, making cancer patients more prone to cardiovascular complications,’ said Dr Rajdeep S. Khattar, consultant cardiologist at the Royal Brompton Hospital in London, UK. ‘Our study raises the possibility that tumour growth itself may also damage the heart which could have important implications for monitoring.’

Previous studies have shown that cancer patients who have had chemotherapy can have a normal ejection fraction but reduced strain and that this may predict subsequent cardiotoxicity. The current study carried this finding a step further to see if untreated cancer patients with a normal ejection fraction also had reduced strain measurements.

The study compared myocardial strain in three groups with a normal ejection fraction (55% or more): 43 patients with cancer who were currently being treated or had received treatment in the past, 36 patients with as yet untreated cancer, and 20 healthy individuals matched to the cancer groups for age and gender.
The researchers found that both groups of cancer patients had similarly reduced strain measurements compared to the healthy individuals.

Dr Khattar said: ‘What was really new was the finding of reduced strain, and therefore myocardial dysfunction, in the group of patients with cancer who had not yet received treatment. This raises the possibility that the tumour itself may have a direct and deleterious effect on the function of the heart.’

Patients with reduced strain before they start their cancer drug therapies may be predisposed to developing heart failure during the course of their treatment and need closer monitoring.

Chagas disease in Spain

Latin American migrants in Spain should be screened for Chagas disease, particularly women before pregnancy, doctors urged at EuroEcho-Imaging 2015.

Chagas disease is caused by the protozoan Trypanosoma cruzi. It is endemic in Latin America, where it is transmitted by bloodsucking insects that typically live in the cracks of poorly constructed homes. Up to 40% of patients develop a chronic disease that primarily affects the heart and bowel and carries a high risk of sudden cardiac death.

Around 4.2% of the Latin American community living in Europe is infected with Chagas disease. Spain is the most highly affected country in Europe with between 50 000 and 70 000 patients. Mother-to-child is most common transmission route in Spain.

The study included 145 patients with the parasite. Patients were 43 years old on average, 68% were women and 93% were from Bolivia. More than one-third (34%) had an abnormal electrocardiogram, and of those, 31% had bradycardia. The most common heart block was right bundle branch block.

More than 38% of patients had an abnormal trans-thoracic echocardiogram. Of these, 34% had a dilated left atrium and almost 15% had diastolic dysfunction. ‘Almost none of these patients had hypertension,’ said author Dr Carlos A. Álvarez-Ortega. ‘It suggests that the abnormalities are the result of Chagas heart disease in these young, asymptomatic patients.’

According to the modified Rassi scale, which predicts Chagas patients’ risk of dying in the next 4 years, 94% patients in the study were at low risk, 4% were at intermediate, risk and 2% were at high risk.
Although advantages exist in the different imaging methods, there are also some new problems, as in some cases the information provided by different methods overlap.

It is therefore necessary to create new diagnostic algorithms that include these new technologies, incorporating them in a logical sequence in the diagnostic work-up of a specific disease, allowing the rational use of the different methods and defining the timing and selection of the imaging technique indicated in each specific clinical setting.

The selection of test used in each case must therefore lay in the thorough knowledge of what each method can provide and in the advantages and disadvantages of each one compared with another, in terms of information, diagnostic ability, reliability, safety, and impact in clinical outcomes.

To achieve these aims, the collaboration between different imaging subspecialties should be encouraged, specifically with guidelines and joint protocols. The concept that the different methods are complementary and not competitive is very important. In this context of multidisciplinary interaction and complementing, it is therefore recommended that an expert in a particular imaging technique has some theoretical knowledge and practical experience in all imaging modalities.

The Association has three Sections (echocardiography section, cardiovascular magnetic resonance section, nuclear cardiology, and cardiac CT section) which work closely together on all aspects of cardiovascular imaging with a particular focus on education, training, and scientific initiatives.

The echocardiography section major objectives include the dissemination of education and recommendations to echocardiography practitioners and cardiologists, not only in Europe but also worldwide.

The cardiovascular magnetic resonance section aims at being the representative trans-national scientific organization for physicians, scientists, and technologists who work in the field of CMR. The purposes of the EACVI CMR section are to stimulate and disseminate knowledge and the use of CMR through education, quality control, research, and training.

The Nuclear Cardiology and Cardiac CT section is dedicated to promoting education, research, and clinical excellence in the fields of Nuclear Cardiology and Cardiac CT, as well as collaboration between all cardiovascular imaging modalities.

With 12 different committees, each one integrating members of the three different imaging sections [club 35/HIT (heart imagers of tomorrow) committee, European communities committee, Industry round table committee, Scientific documents committee, Research & innovation committee, Education committee, Web & communication committee, International affairs committee, Certification & accreditation, Euroecho-imaging scientific programme committee, EuroCMR 2016 scientific programme committee, and ICNC 2017 scientific programme committee] and >5000 members (we are proud to be the largest ESC Association!), the EACVI is committed to maintaining the highest standards of professional excellence in all aspects of cardiovascular imaging.

The EACVI journal, the European Heart Journal of Cardiovascular Imaging, is now a high scientific quality and high impact factor journal, contributing to the EACVI mission, providing excellence in clinical research in all field of cardiovascular imaging.

Our major aims for the near future include, among others, the following ideas and concepts:

1. Think of imaging rather than on Echo, CMR, nuclear imaging, or CT.
2. Develop a strong international network (Europe + other countries).
3. Create new strategies to increase membership.
4. Move towards common procedures for different imaging techniques (for instance, certification & accreditation).
5. Education-web: develop multimodality imaging packages/algorithms by pathology/clinical problems.
7. EHJ-CVI-strong support for the Editors to create strategies to improve the overall quality/impact factor.

We have created a new and large Association!

It is now time to stay together, work together, and grow together, working hard with good friends in a nice atmosphere, to the highest scientific level.

The Annual Congress of the Spanish Society of Cardiology

The Sociedad Española de Cardiologia was held 22–24 October, 2015, in Bilbao, Spain

As every year the Spanish Society of Cardiology (SEC) met with all its members and interested physicians in Bilbao in the Basque Country at the end of October 2015 (Figure 1).

Overall, the congress which was organized this year by Prof. Lina Badimon, FESC, Vice-president of SEC and Director of the Cardiovascular Research Center (CSIC-ICCC, Hospital de Sant Pau) in
Barcelona, an internationally known cardiovascular scientist with a focus on vascular disease and thrombosis, attracted \( \approx 3500 \) participants.

Lina Badimon was trained for 2 years in the USA at the Mayo Clinic and worked as Director of Cardiology Research at Mount Sinai Medical Center and the Massachusetts General Hospital-Harvard University for 12 additional years before returning to Spain her home country.

Lina Badimon with the help of the Scientific Committee of SEC-2015 focussed the programme of this year’s Annual Congress of the SEC on a well-balanced merge of the different subspecialty areas within cardiology with a special input on research coming from hospitals and research centres in the country. This year the abstract submission reached a record number, when >1500 abstracts were received.

The opening ceremony featured welcome addresses from national politicians, from Prof. Lina Badimon as Vice-president and Prof. Jose-Ramon Gonzalez-Juanatey as President of SEC, from Prof. Fausto Pinto as President of ESC, from Dr Richard Chazal as Vice-president of ACC and Dr Gregg Fonarow on behalf of AHA.

An excellent Opening Lecture entitled ‘From Eisenhower’s Heart Attack to Modern Cardiology’ was delivered by Prof. Thomas F. Lüscher, editor-in-chief of the European Heart Journal and Professor and Chairman of Cardiology at the University of Zurich (Figure 2).

During the ceremony, the SEC awards were also given to this year’s awardees. A record number of 18 research grants (7 for basic science, 4 in translational science and 7 in clinical science) and 7 post-residency mobility Fellowships were awarded.

As every year the Portuguese Society of Cardiology and several societies from South America were represented in our congress. Sociedad Interamericana de Cardiología, Sociedad Mejicana de Cardiología and Sociedad Venezolana de Cardiología joined in Bilbao.

During the 4 years of Prof. Badimon’s contribution to the annual scientific congress of the SEC a strategic policy was implemented to increase the presence of innovation and fundamental scientific research at the congress. As such in Bilbao, ‘Cardioscience’, ‘Advancements in Science’, and ‘Science in Practice’ sessions focusing on the different levels of progression of novelties in cardiology, from basic

Figure 1 SEC 2015.

Figure 2 Thomas F. Lüscher, Eisenhower Lecture.
science to translational science to initial clinical application were successfully held.

The ‘Hot Topics in Cardiology’ focused on the scientific basis of cardiovascular disease and its implications for the management of cardiac conditions. A total of 36 internationally known experts gave lectures in our congress.

Also this year, as a novelty, we had two Joint Sessions of SEC with two ESC-scientific bodies. The ESC-Working Group on Coronary Pathophysiology and the Microcirculation, and the Council of Hypertension, had highly successful sessions that elicited constructive discussions.

The educational part of the programme is also very important because the congress has the objective of fostering the young communities of residents and cardiology research Fellows. This educational section is composed of different session formats but the Clinical Cases, Electros, and Imaging Competitions are lively and highly appreciated.

Furthermore, a shared meeting of the Revista Española de Cardiología and the European Heart Journal was held on Friday, 23 October, 2015 with Juan Sanchis and Thomas F. Lüscher as chairpersons. The most interesting papers of the Revista Española de Cardiología were presented and discussed by experts from SEC. Furthermore, a current opinion paper published in the European Heart Journal on quality assessments in cardiovascular care rounded up this interesting session.

Overall, this year’s Annual Meeting of the SEC was indeed a success both from the number of attendees and the quality of the meeting.

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European Society of Cardiology Chief Executive Officer wins Professional Convention Management Association Chairman’s Award

Isabel Bardinet European Society of Cardiology Chief Executive Officer received the 2015 Professional Convention Management Association (PCMA) Chairman’s Award in January, presented at the PCMA Convening Leaders conference in Vancouver, Canada

The award is the highest honour bestowed by the Chairman of the Professional Convention Management Association (PCMA).

Isabel Bardinet was acknowledged for her creative involvement of the community in advancing the European Society of Cardiology (ESC)’s mission at ESC Congress 2015. European Society of Cardiology staff teamed up with local partners to create the London Heart Trail, an interactive walk along London’s iconic South Bank with a specific aim of promoting awareness of heart health to the London public.

European Society of Cardiology Congress, the ESC’s annual event, is the world’s largest and most influential cardiovascular meeting. In 2015, the 5-day conference attracted 34 000 delegates to ExCeL London. Isabel Bardinet said: ‘Recognition from PCMA, who is a standard setter for our profession, means an awful lot to us.’

The ESC’s mission is to reduce the burden of cardiovascular disease in Europe. This burden affects nearly one person in four worldwide and kills over four million people in Europe alone every year. Education, sharing and dissemination are our main tools to deal with this pandemic. The most visible of our activities is ESC Congress.

The Heart Trail was organised and implemented for the people in London during the congress to get the messages of prevention across to them and indirectly thereby save lives. The success of the Heart Trail was mostly thanks to London & Partners and ExCeL, without whom this would never have been possible.

On behalf of the London Team – that is to say London & Partners, ExCeL, ESC staff and volunteers – I would like to thank PCMA for such a wonderful reward which means so much to us all.

James Rees, Executive Director at ExCeL London, said: ‘On behalf of ExCeL London, I would like to congratulate Isabel Bardinet on winning the PCMA Chairman’s Award. This is hugely-deserved recognition and we are thrilled for her and the ESC team. Isabel is a thought-leader in our industry who recognises, and champions, the role of events to support the missions of medical associations and leave a legacy of positive change in the destinations they select. It was a pleasure for us to work with ESC and London as a whole during 2015 to host the ESC Congress and raise awareness of the healthy changes that can be made to reduce the burden of cardiovascular disease across London and the UK.’

A. Tofield
ESC Press Office
Holger Thiele MD

Holger Thiele, former deputy director of the department of internal medicine/cardiology at the Heart Center of the University Leipzig, Germany, has been appointed full Professor and Director of the Medical Clinic II (Cardiology/Angiology and Intensive Care medicine) of the University Hospital Schleswig-Holstein, Campus Lübeck, Germany, by the faculty of the University of Lübeck.

Holger Thiele studied medicine in Berlin and obtained his clinical training at the Heart Center of the University of Leipzig under the leadership of Professor Gerhard Schuler. During his training, he worked as a Research Fellow in the field of cardiac magnetic resonance imaging at the German Heart Institute in Berlin and also at the Leeds General Infirmary, University of Leeds, UK.

Holger Thiele has a major research interest in the treatment of acute coronary syndromes including all complications particularly cardiogenic shock. Furthermore, he implemented cardiac magnetic resonance imaging as a tool for prognosis estimation in patients with acute coronary syndromes. He provided major contributions to the treatment of acute coronary syndromes by performing large multicentre trials evaluating the best adjunctive therapy for reperfusion.

In cardiogenic shock, he was the principal investigator of the IABP-SHOCK II trial which led to the downgrading of the intra-aortic balloon pump from a former Class I recommendation to a Class III recommendation in recent guidelines. He contributed further to the understanding of the pathophysiology and prognosis of cardiogenic shock by other multiple trials in cardiogenic shock. Currently, Holger Thiele is performing other large-scale randomized multicentre trials evaluating the optimal reperfusion strategy in patients with cardiogenic shock complicating acute myocardial infarction who have multivessel disease. This EU-funded trial will also allow further understanding of the prognosis and the pathophysiology of cardiogenic shock.

Similarly, his work on cardiovascular magnetic resonance in the differential diagnosis of acute coronary syndromes including myocarditis, Takotsubo-cardiomyopathy, and other infiltrative and inflammatory diseases has significantly contributed to the better understanding of the conditions. Large Takotsubo-cardiomyopathy registries were well suited to understanding this not so rare disease.

He states that Lübeck is now the ideal landing zone for him to pursue this effort with major clinical trials because of its great tradition as a hub for innovation and because of the possibilities Lübeck offers as a partner site of the German Center for Cardiovascular Research.

Apart from work where he endeavours to be a good teacher, chief, and also a good physician, his family, friends, soccer, long-distance running as well cycling are of major importance.

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